Canada

AND HER NEIGHBOURS

TAYLOR - SEIVERIGHT - LLOYD

699

GARNEAU PUB

DEC 8 - 1948

GARNEAU SCHOOL		
YEAR	STUDENTS NAME	ROOM
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Nr. 5.

Room 19

Courtesy Trans-Canada Air Lines

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GINN AND COMPANY • TORONTO

Dear Boys and Girls,

The other day a teacher asked some boys and girls who were about your age what they wanted to be when they grew up.

"I want to be a cow-boy," said Jim. "I saw one the other night at the movies. He was riding a horse ever so fast, away across the plains."

"I want to be a fireman and drive a big fire truck," said Ned. "I would climb to the very top of the ladder to turn the hose on the burning building."

"Dear me!" said Miss Smith. "Then you won't be able to live near your friend Jim, because there are no tall buildings to catch fire where the cow-boys live.

"But what about the girls? What are you girls going to do?"

"I want to be a nurse in a big hospital with rows and rows of beds," said Wendy.

"And I want to be a stewardess on a plane," said Nan. "My daddy said there was one on the plane on which he flew to Vancouver, and she gave everyone some gum to chew."

"I want to be a fisherman," said Alex, who had been waiting to get his chance to speak. "Last summer when we were in Nova Scotia I watched the fishing boats go out to sea, and I did wish I could go too."

"But that wouldn't be as much fun as being a bush pilot, Alex," said Bob. "I'm going to fly a plane away north to the gold mines as my uncle does. Why, he brings his plane right down on to a lake!"

"Well, boys and girls," said Miss Smith, "by the time you are grown up some of you will be living in other parts of Canada. The kind of work you do decides very largely where you are going to live. It is true, too, that where you live often decides what work you will do."

This book tells about the work done by many different people living over much of the continent of North America. As you read about the work they are doing, try to find out why that type of work is being done in that particular place. The boys and girls with whom Miss Smith talked would by no means be able to find the kind of work they wanted to do in one place. As you learn more about our country of Canada, you will discover where each of those boys and girls might go to get his wish.

Geography always tells two stories side by side. One is about people and what they are doing. The other is about the part of the world in which they are living, and how it helps or hinders their work. Putting these two stories together is what makes geography such fun.

Sincerely yours,

The Authors

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Foreword for Teachers

At the outset of a new school year, every teacher charts her course for the coming year. What are the objectives of this book? In studying the geography of Canada, we have a challenge to guide our pupils to interpret life as lived in our homeland. As one of the social studies, geography should help pupils to develop right social attitudes; to prepare pupils to assume with intelligence their duties as citizens, not merely in some distant day when they become adults, but now, in the home, the school, the community. If this is our goal as teachers, how then shall we reach it?

Geography teaching has undergone a transformation in recent years. Formerly, textual material was limited in scope and concerned merely with facts,—the boundaries of countries, coast waters, products, exports, cities. Teaching this type of geography was comparatively simple: a matter of endless drill continued to the point where the essential facts could be given back by the pupils. But to what purpose was all this effort? What good did it do? Were the pupils more socially mature than those of the present day?

Today we know that all this is changed. Facts are still essential, of course, but they are not important in and of themselves. They are meant to be used in showing relationships, in interpreting the pattern of man's life in differing environments, in helping children to solve social problems as they meet them in their everyday life. In the course of learning to make this three-fold use of facts, the pupils should be developing skills which should serve them throughout life.

With altered aims our methods must also change. If we are to teach pupils to reason, to interpret, and to feel, our teaching can no longer assume the form of "tell and recite" or "read and recite." The pupils must be guided to seek out for themselves the information they need; to use this information in some purposeful activity; to express what they have found, either in words or in some visual form; to "feel" the relationship between what they are learning and the life that is round about them and of which they are a part.

For these purposes what has this text to offer? Facts, yes,—but fewer than in the old-type text, and facts that are used to develop understandings; maps of many kinds, pictures, stories, an index giving the pronunciation of place names, a few statistical tables, and, especially, many exercises and "things to do." Let us briefly examine how each of these types of material should be used.

Maps speak a language of their own, which children must be taught. Pupils will at first need to "spell out" the lines and symbols on the map, but with increasing practice they will be able to read them easily. Only then will each child form the habit of looking through the printed map to the reality that lies behind it.

We need to refer back continually to maps that have already been used, and to compare two or more maps showing the same area. This "comparative map study" is one of the best ways of bringing together in the child's mind the various, but interrelated, facts which, taken together, help him to interpret the country in which he lives.

Map reading becomes much easier when children have themselves made simple maps, whether of the home region or of some more distant parts of the country.

Since every picture included in the text is used for a definite purpose, each of them deserves careful study. Even though time may

be short, it is worth-while to study the pictures with the children, or to guide them by questions in studying the pictures for themselves. Pictures tell more than many words; therefore their use is an economy of time.

The ability to use an index quickly and efficiently is a skill which should be developed early in the year. An index is the key to the world which a book opens up. The sooner the children learn to explore that world for themselves the better.

As for the textual material, what use shall be made of it? Certainly it is not intended that it should all be *learned* in the old-fashioned sense. If it proves to be sufficiently interesting, the children will read it for themselves, when given a chance. But of course mere reading is not enough. For actual study the teacher should choose those portions of the text which best suit the needs of each class; those portions which serve best to interpret life in their particular environment.

In our study of the geography of Canada particular attention should be paid to the area which is known personally to the children—their "home region." There they are able to experience at first hand conditions that are at best second hand in other areas. The work laid down in this book can readily be adjusted to suit the particular needs of schools in various parts of the country. The authors will be glad to offer suggestions to teachers who may need help in adapting the text to their special local needs.

As for the stories, they serve to show that geography concerns the life of real people. The details of the stories are often unimportant, but each story aims to show a relationship between life and the peculiar environmental pattern in which it is lived. This relationship should be understood.

Unfortunately—or perhaps we should say fortunately—no text can include all that is needed. Choice has to be made of that which seems most likely to be useful and interesting to pupils in widely differing environments. Moreover, the social studies are living—ever-changing and ever-developing. It is good that children should early realize this fact and understand that they must always be alert to gather fresh material from magazines, newspapers, movies, and the radio.

The inclusion of portions of history in the text has two purposes: to show pupils how inseparable that subject is from geography, and to offer suggestions as to how the work in the two subjects may be correlated. In no case should the amount of history included here be considered as a substitute for a good history text.

The exercises and suggested activities are merely suggestive. Each teacher will think of many that are better suited to the needs of her own particular class. As the work of the year progresses, the pupils themselves should be able to suggest activities of their own,—things which they want to find out and to do.

In the preparation of this book it has been the constant desire of the authors to help to lead pupils towards a better understanding of life around them and towards a deeper appreciation of the inheritance that is theirs.

While *Canada and Her Neighbours* is a book that concerns North America particularly, it offers scope for discussing Canada's overseas relations. Through reference to the lands from which many Canadians came and to our country's overseas trade and shipping, and by a study of Canada's relationships with the United States, pupils can become aware of the wider world of which their land is a part. Thus they are being prepared for study of other parts of the world in later years.

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X · Alaska

ADDITIONAL TEACHING AIDS

At the end of each section of this book is a list of books from which the teacher and pupils can obtain additional information.

The use of films is now an accepted teaching technique. To assist those able to supplement the textbook in this way, a list of films of selected parts of Canada is given on pages 238–239. The films may be borrowed from the National Film Board, Ottawa, or through its branch film libraries throughout the country.

Canada

AND HER NEIGHBOURS

DRAWN BY RICHARD EDES HARRISON 1944 OBLIQUE CONIC CONFORMAL PROJECTION COURTESY OF AMERICAN GEOGRAPHICAL SOCIETY

Courtesy of Canadian National Railways

Leaving Halifax for our trip across the country.

CANADA AS A WHOLE

It was early in September, and John and Bill were talking after their first day at school.

John. "What do you suppose, Bill? They say we are to study Canada in Geography this year. Last year we had such fun learning about how people live in faraway lands, and now this year we have to study Canada. I don't see what fun there can be in that. I would like to learn about China, or India, or some other country that we don't know all about anyway."

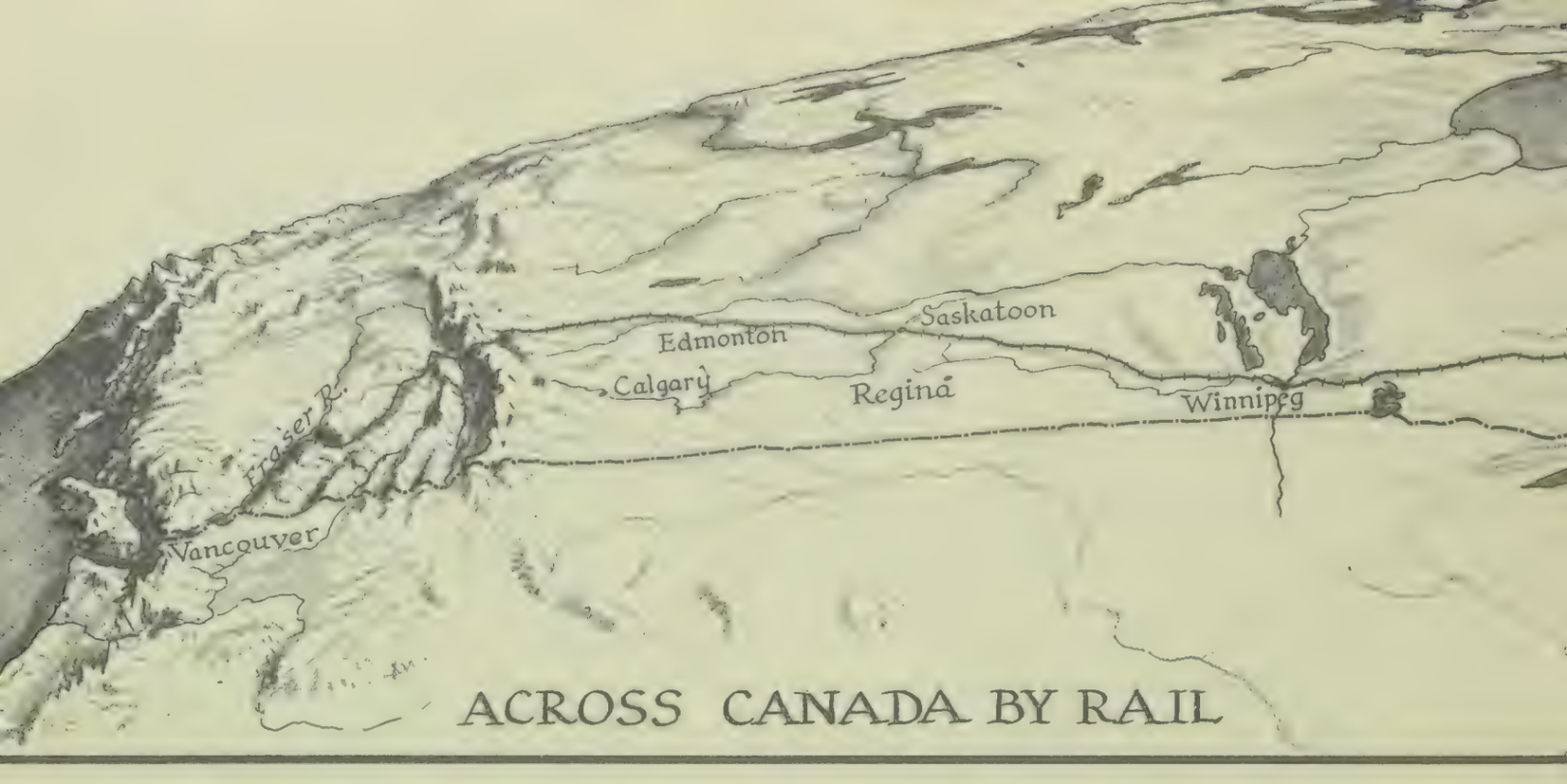
Bill. "But Canada, that's our *own* country; we ought to know a lot about it."

John. "That's just it. We know all about Canada already, and there's nothing strange or different about us anyway."

Bill. "I don't know, John. The other day I heard my father talking to a man from Europe. This man said, 'What a wonderful country Canada is—so large, so new, so rich, so beautiful'; and my dad said, 'Yes, that is true, it is a large and wonderful country; but it is so large many Canadians never get to know it as they should.' I, for one, should like to find out much more about this country in which we live."

A JOURNEY ACROSS CANADA

Halifax to Montreal · Can you remember what you were doing last Monday morning at 8:00 o'clock? Just about that time a train was leaving the station at Halifax, which is on the eastern shore of Canada. Find Halifax on the map, and let us suppose that you are aboard the train. As you leave Halifax you notice the many large ships in the harbour, for Halifax is an important port and the ships sail to and from all parts of the



ACROSS CANADA BY RAIL

world. Halifax is in Nova Scotia. Before lunch time you cross the border of Nova Scotia and enter the Province of New Brunswick. All day you travel through New Brunswick, and you will guess from the immense forests on either side of the railway that lumbering, that is the cutting of trees, is an industry important to this province.

During the night you cross another provincial boundary into the Province of Quebec. Very early in the morning, in the grey dawn, you may put up the blind and find yourself on the bank of a great river, the St. Lawrence. On the opposite shore high up on the cliffs there is the city of Quebec towering above the river. If you are not too sleepy, you may notice the farms of Quebec as the train journeys on above the valley of the St. Lawrence, and you will understand that agriculture is important to Quebec. At Montreal you get off the train and have breakfast. Find Montreal on the map. You have been on the train for 24 hours, and yet you have travelled through only a small fraction of Canada! You can understand one reason for calling Canada a great country!

The train from Montreal for the West does not leave until the evening, and so you have

The route of our train winds through the wooded hills of New Brunswick.

Courtesy of Canadian National Railways

time to look around this great city. Probably the first thing you will notice is the mountain, Mount Royal, from which Montreal gets its name, and which is in the centre of the city. It was to the top of this mountain that Jacques Cartier, an explorer sent out by the King of France, climbed 300 years ago. Montreal is now a busy manufacturing city, the largest in Canada.

Through Ontario · In the evening you board another train and in about three hours' time pass through Ottawa, the capital of our country. Unfortunately, it is so dark that you cannot see Ottawa with all its fine buildings. You are now in the Province of Ontario. All Tuesday night and all day Wednesday you travel through Ontario. As the railway crosses the northern part of the Province you miss the busy cities to the south. From the train windows you see forests, rocks, and swamps, or *muskeg*. The forests are important in Ontario. From the trees come the lumber which is used for building. From other trees is made the paper on which this book is printed. In the rocks are many valuable metals—iron, gold, nickel, and dozens of others which bring great wealth to Canada. You may be able to see from the

Quebec as we see it from the opposite shore of the St. Lawrence River.

Courtesy of Canadian National Railways

Royal Canadian Air Force Photograph

Courtesy of Canadian National Railways

National Film Board Photograph

Other sights along our way: the Parliament Buildings in Ottawa; threshing wheat in the Prairie Provinces; our railway clinging to the wall of a canyon in British Columbia.

train windows some of the mines from which these metals come. You go to bed once more, and when you wake up you are still in Ontario. Soon after breakfast you reach Winnipeg, the capital of Manitoba. You left Halifax on Monday morning. It is now Thursday morning, and you are just about half way across Canada from east to west. Truly it is a great country!

Prairies and mountains · On and on the train goes. All day you notice the great wheat fields, and late in the evening you reach Saskatoon, in the Province of Saskatchewan. Friday finds you in Alberta, and you catch the first glimpse of the snow-capped Rocky Mountains. What a thrill these towering peaks give you after the endless stretches of plains! As the train climbs and winds, you cannot help marvelling at the many sights. Most striking perhaps are the masses of jagged rock rising 6000 feet in some places from the side of the railway track. Why are there so few people living here?

Journey's end · Thick forests cover the lower slopes of the mountains, and between the mountain ranges are fertile valleys. For much of the journey the train follows a fast-flowing river. The water seems to froth and boil as it strikes against the rocky banks. Gradually the river widens and appears more quiet, but like your train it is sliding swiftly to the sea. You enter the broad green valley of the lower Fraser River. After the wild mountain scenery the sight of well-tilled fields and grazing cattle tells you that you must be nearing a place where more people live. Yes, you are right. You have almost reached Vancouver and your journey's end. Monday morning to Saturday morning on the train—five days—yes, Canada is a great country! You have travelled from the Atlantic Ocean to the Pacific Ocean—from sea to sea. Find a picture showing the "Coat of Arms" of Canada.

You will notice that the motto is in Latin, but it means "from sea to sea." Do you think this is a good motto?

It is about this great sea-to-sea country that we shall read in this book. We shall learn that Canada is not only great in size but great in importance in the world. We shall find out why this is so.

THE DISCOVERY OF CANADA

The early explorers · Who first found Canada? How long has it been known to the white man? These are questions which cannot be answered with certainty. Nearly a thousand years ago men from Norway, called Norsemen, voyaged to this side of the Atlantic Ocean and when they returned home told of visiting "The Land of the Vine." This may have been Canada, it may have been Newfoundland, or it may have been part of the United States, but one thing is certain: they "discovered" America about five centuries before Columbus.

Five hundred years later John Cabot sailed from England to the shores of Canada seeking a new way to China. Cabot was disappointed with the rocky coast which he found. He saw no living soul; so he returned to England. Just which land Cabot saw is not certain, but some people say that it was the tip of Nova Scotia which is now known as Cape Breton.

About forty years later Jacques Cartier made two voyages for France. On the first voyage he visited some of the islands in the Gulf of St. Lawrence. On the second voyage, a year later, he sailed up the broad St. Lawrence River as far as the Indian village, Hochelaga, where Montreal now stands, and then spent the winter at Quebec. There is a story that the city of Quebec got its name when one of Cartier's men, gazing at the high cliffs, said "*Que bec!*" "What a peak!" But there is another story which is probably

Two of the early explorers: John Cabot and a crew of eighteen men leaving England on their voyage across the Atlantic; Jacques Cartier discovering the St. Lawrence River.

The provinces and territories of Canada.

the true one. This says that Quebec is an Indian word meaning "narrows." The city is located at the first narrow place in the St. Lawrence River.

Champlain and the first colony · In 1603 Samuel Champlain sailed from France to explore Canada. He travelled up the St. Lawrence River as far as Montreal. Why do you think both Cartier and Champlain went no farther westwards? Do you think it was because at Montreal there are rapids in the river up which boats cannot sail? In these rapids the river flows so swiftly over ledges of rock that even the ships of today cannot sail up them, although a few "shoot the rapids" on their way downstream. As we shall see later, this is one of the reasons for the importance of Montreal. Montreal is said to be at the "head of navigation"—that is, it is as far as ocean ships can sail, although a canal has been built around the rapids, and this allows smaller vessels to pass.

A few years later Champlain returned to Canada and sailed into the Bay of Fundy. On St. John's Day he saw a broad river flowing into the sea, and this he named the St. John River, at the mouth of which stands today the city of St. John. At the mouth of another river, now known as the St. Croix, which forms the boundary between New Brunswick and the United States, Champlain landed and built a fort.

However, the tiny island on which the colony was founded was a poor choice. As winter came the explorers found they had no hills to protect them from the bitterly cold winds which blew from the north. In the spring, therefore, they looked for a more suitable place and chose a fine protected bay, the Annapolis Basin in Nova Scotia; and to this spot they moved their colony.

The native people · The early explorers found in Canada a people who were strange to them and whose language they did not

The physical regions of Canada.

understand. These were the Indians. It is natural, therefore, that we have in Canada many place names which come to us from the Indians. Chicoutimi, Saskatchewan, and Miramachi are some. Indeed the name Canada itself is said by some people to come from an Indian word.

THE PHYSICAL REGIONS OF CANADA

Two kinds of mountains · As you can imagine, in a great country like Canada, life is not everywhere the same. Some parts are rocky and mountainous, while others are level or rolling plains. Look at the map above. In the west you will find young, rugged mountains. The mountains along the coast are called the *Coast Range*, and those farther inland include the *Selkirks* and the *Rocky Mountains*. The picture at the top of page 10 shows you the steep slopes and snow-covered peaks of these mountains. It is easy to understand now why they are said to be *rugged*, or rough. They look as if they had been there for a very long time. Indeed they have, but they are not nearly so old as the mountains in the eastern part of Canada. Rain and snow, wind and frost, and ice have been at work wearing down these mountains, but they have not yet had time to round off the sharp peaks or to fill in the deep valleys between them.

In the eastern part of Canada are old, worn-down mountains. Now look at the picture at the bottom of page 10, and you will see how these mountains differ from the rugged mountains of western Canada. They have rounded tops and gentle slopes. Also, because they are lower, snow does not cover them all the year round. These mountains were high and rugged long ages ago, probably much higher than the Rocky Mountains are now. But ice, snow, rain, frost, and wind have been at work wearing them down. These worn-down mountains of the

The sharp peaks and steep slopes of the Rockies make western Canada famous for its scenery.

In the mountains of eastern Canada, with their rounded tops and gentle slopes, there are many farms.

Province of Quebec Tourist Bureau

Courtesy of Canadian National Railways

A village among the lakes and low tree-covered hills of the Laurentian Upland.

11

The Laurentian Mountains are a favourite playground for skiers during the winter months.

Associated Screen News Ltd.


ARCTIC OCEAN
Bering Sea
Beaufort Sea
ALASKA
Yukon R.
Nome
Pt. Barrow
Fairbanks
Anchorage
UNIMAK I.
ATTU I.
NEAR ISLANDS
KODIAK I.
Gulf of Alaska
RISKA I.
RAT ISLANDS
TANAGA I.
ADAK I.
ATKA I.
ANDREANOF IS.
ALEUTIAN ISLANDS
UMNAK I.
UNALASKA I.
UNIMAK I.
FOX ISLANDS
Dutch Harbor
PACIFIC OCEAN
Mt. St. Elias 18,008'
Mt. Logan 19,850'
Dawson
YUKON
Whitehorse
Juneau
Ketchikan
Prince Rupert
QUEEN CHARLOTTE ISLANDS
VANCOUVER I.
Victoria
Seattle
Aklavik
Inuvik
Tuktoyaktuk
Coppermine
Fort Norman
Mackenzie R.
Great Bear Lake
NORTHWEST
Liard R.
Great Slave Lake
Hay R.
ROCKY MOUNTAINS
BRITISH COLUMBIA
Peace R.
Athabaska R.
Lake Athabaska
Reindeer Lake
ALBERTA
SASKATCHEWAN
Mt. Robson 12,972'
Fraser R.
Columbia R.
Edmonton
Calgary
Saskatchewan R.
Saskatoon
Regina
Churchill R.
BANKS I.
VICTORIA ISLAND
MELVILLE I.
McClure Strait
Prince of Wales Strait
UNITED
CANADA
Statute miles
0 50 100 200 300 400 500 600
over 10,000'
3,000'—10,000'
1,000'—3,000'
0'—1,000'
★ Capitals of countries
○ Capitals of provinces
120
110°


GREENLAND
ELLESMERE ISLAND
DEVON I.
Baffin Bay
Davis Strait
BAFFIN ISLAND
C. Farewell
Foxe Basin
Hudson Strait
SOUTHAMPTON I.
Hudson Bay
ATLANTIC OCEAN
Churchill
Port Nelson
Nelson R.
Churchill R.
Severn R.
BELCHER ISLANDS
Fort George R.
Eastmain R.
James Bay
Albany R.
Moosonee
LABRADOR
Goose Bay
Hamilton R.
Strait of Belle Isle
NEWFOUNDLAND
ANTICOSTI I.
Gulf of St. Lawrence
Gaspé Pen.
MIQUELON I.
ST PIERRE I.
Sydney
CAPE BRETON I.
P.E.I.
Charlottetown
NEW BRUNSWICK
Fredericton
St. John
Bay of Fundy
NOVA SCOTIA
Halifax
C. Sable
Saguenay R.
Quebec
St. Lawrence R.
Trois Rivières
Montreal
Ottawa R.
Ottawa
Lake Nipigon
Lake of the Woods
Winnipeg
Lake Winnipeg
Lake Superior
Sault Ste Marie
Duluth
Lake Huron
Lake Michigan
Lake Ontario
Toronto
Hamilton
Buffalo
Detroit
Windsor
Lake Erie
Boston
New York

eastern part of Canada are called the *Appalachians*. The map of North America on page 2 shows you that these same mountains continue into the United States. The rugged mountains along our western coast also continue southwards into the United States.

The uplands and plains · For 2000 miles towards the northwest from Labrador stretches the Canadian Shield, a region containing thousands of lakes and low, rounded hills covered here and there with trees. This area is shown on the map on page 9 as the Laurentian Upland, and that is the term that we shall use in this book. The rocks of which this region is made are among the oldest in the world. The southern edge of the upland just north of the St. Lawrence River is often called the Laurentian Mountains. In the centre of this vast rolling upland lies Hudson Bay. See the pictures on page 11.

Lying to the west of the Laurentian Upland, and between it and the Rocky Mountains, Canada is made up of plains that are in places higher than the upland. This great stretch of plains extends into the United States as far south as the Gulf of Mexico. See the map on page 2. The part of the plain that is in Alberta is not flat, but is gently rolling and includes some hilly country. Farther east, in Saskatchewan, some of the region is almost flat. These plains meet the low plateaus which make up the Laurentian Upland on a line running from near Winnipeg to the mouth of the Mackenzie River. Find this river on the map on page 9. Into what ocean does it flow?

Two other plains that are shown on the map are the one through which the St. Lawrence River flows on its way from the Great Lakes to the sea, and the one bordering Hudson Bay and James Bay on the south. Still another is the plain bordering Lake Ontario, Lake Erie, and Lake Huron. This plain is a part of the Central Plains of North America.

Look at the map on pages 12–13 and locate carefully each of the physical regions of which you have read.

THE PROVINCES OF CANADA

You have learned that the surface of Canada can be divided up into a number of physical regions which are shown on the map on page 9. Canada also has political divisions. The nine provinces were formed to make it easier to govern Canada. They are shown on the map on page 8, divided from one another by lines called *boundaries*. These boundaries are often marked in many ways for the traveller. Anyone going eastwards from New Brunswick may see a road sign, "Welcome to Nova Scotia," near the point where he crosses from one province to the next. The motorist travelling westwards from Ontario into Manitoba finds near the highway at one place that a line has been cut through the trees to show where Manitoba begins.

The map of provinces is called a *political* map. It shows you that a large part of Canada lies north of the nine provinces. This northern area is divided into two parts: the western part is called Yukon Territory, and the eastern part is called Northwest Territories. Make a list of the eleven political divisions of Canada shown on this map. Which of the provinces includes most of the rugged mountains shown on the map on page 9? How many different physical regions can you discover within the boundaries of Ontario? Which of our territories and provinces do you pass through in following the interior plains region from the Arctic Ocean to our southern boundary?

From now on you will be using the map of physical regions and the map of provinces in learning about life in different parts of our country.

Canadian Pacific Railway Company

A stand of wheat on the level plains of eastern Saskatchewan.

Farms laid out in narrow strips stretch back from the river in the St. Lawrence Lowland.

Courtesy of Canadian National Railways

Where the people of Canada live. Compare this map with the one on page 9. In which physical region do people live in largest numbers?

THE POPULATION OF CANADA

Canada is a country with about 12,300,000 people, but you will learn in your study of it that there are areas in which very few people live and others in which a great many live. The Province of Ontario has over 10 persons per square mile, while in the Northwest Territories there are only 9 people for every 1000 square miles.

Now that you know how the surface of Canada varies from coast to coast, you can understand one reason why people live more easily in some regions than in others. As you read about the different sections of Canada, you will want to watch for other reasons why there are many people and fine cities in certain parts of Canada and not in others.

MAP STUDY · Study the map on pages 12–13. It tells quite a different story from those told by the maps on pages 8 and 9. Let us see what it tells. Look at the western part of Canada, where we learned there are young, rugged mountains. This map shows these mountains in colours of tan and brown. Now look at the "key" in the corner of the map and see how many feet above sea level is the land that is coloured brown. (Ask your teacher to help you to find out how high your home town is above sea level.) Which was the highest range of mountains which you crossed on your trip from Edmonton to Vancouver? Near Vancouver you will see that the map is coloured in green. From the key find out what this means. Is there much low-lying land in British Columbia? If you took a boat trip along the coast of British Columbia, and looked towards the continent, what kind of land would you see?

Now look at the old, worn-down Appalachian Mountains in the eastern part of Canada. How high are they? How do they compare in height with the mountains in the west? Find the highest part of these mountains just south of the St. Lawrence River. This highest peak is named for Jacques Cartier, who discovered that river.

Find the Laurentian Upland on the map on page 9, and then find it on this map. Is it all high land? Find as many parts of this region as you can that are shown in green. Find the highest parts of the Laurentian Upland. Now try to remember that, high or low, this great region has the same hard old rocks and rounded hills.

Next find on the map on pages 12–13, the plains between the Laurentian Upland and the Rocky Mountains. What a surprise we have! They are not low like the plain near Vancouver, but high; as high as many parts of the Laurentian Upland; as high as much of the Appalachian Mountains. So what a plain really means is that it is flat, although it may not be low.

But many plains, of course, are low. Let us find as many as we can in Canada. There is the plain south of Hudson Bay. It is very low and swampy. Then there is the St. Lawrence Lowland; it is low too. If you look at the population map on this page you will discover something else about that plain. It looks as if that must be an important part of Canada. The last of the Canadian plains, which is bordered by Lake Ontario, Lake Erie, and Lake Huron, is made up of both high and low land.

A QUIZ · See how quickly you can find the answers to these questions:

1. Which is higher, Montreal or Edmonton?
2. On which plain is each situated?
3. Which is higher, Vancouver Island or Prince Edward Island?
4. Which province has the most high land? Which province has the most low land?

Royal Canadian Air Force Photograph

An air view of the harbour and part of the city of Halifax, the chief seaport of Nova Scotia.

THE MARITIME PROVINCES

The three provinces of Nova Scotia, New Brunswick, and Prince Edward Island are almost completely surrounded by the Atlantic Ocean. Because of their location they are called the *Maritime Provinces*, for the word "maritime" means "by the sea." As you can see from the map, the Maritimes are the smallest of all the provinces. Fewer people live in the three of them combined than live in the city of Montreal alone. As you read further, try to find out why this is so. What special kinds of work are carried on by people who live near the sea?

THE PHYSICAL REGIONS

The surface of the land · The difference between rocky coasts and fertile valleys is seen everywhere in the Maritimes. The provinces are part of a low, hilly region which extends southwards into the United States. This is known as the Appalachian Region (see the map on page 9). Throughout this area rocks jut out in many places. In the hilly parts the rocks are often bare or covered with a shallow layer of soil, but in the valleys the soil is richer and deeper. This is particularly true in the valleys of the main rivers, where farming is generally successful. Since there is abundant rainfall, we find great natural forests in New Brunswick and Nova Scotia even where there is little soil.

From the map you will have discovered that most parts of the Maritime Provinces are near the ocean. As a result of this location, they are somewhat cut off from the rest of Canada. The northern part of New Brunswick borders on Quebec Province for a distance of only about one hundred miles.

Look at the map again, and you will notice that on the west New Brunswick is cut off from Quebec by the State of Maine. You can see, too, that each of the Maritime Provinces is wholly or largely cut off from the others. On the map find the land boundary between New Brunswick and Nova Scotia.

Before you study further, turn to the map of the Maritime Provinces on pages 20–21 and work out the following exercises.

MEASURING DISTANCE · In one corner of your map you will see a line called "Scale of statute miles." Place a strip of paper along this scale, with one end on the 0. With a pencil make a dot on your paper opposite 50. That means that on this map every distance as long as from the left end of your paper to the dot is 50 miles.

Now, using your piece of paper with its distance of 50 miles, see if you can find any place in Nova Scotia that is fifty miles from the sea.

If you look carefully at the map, you will see that a long arm of the sea almost cuts Cape Breton Island in two. What is the greatest distance that you can be from the sea on this island?

In the same way measure the width of Prince Edward Island. Notice that deep bays almost cut the island into three parts.

Now it is easy to see why these three provinces are called "maritime." Except in some parts of New Brunswick, the people are always near the sea, and in one way or another most of them depend on the sea for a living.

COMPLETION EXERCISES · After studying the map, choose the right word to complete each of these sentences:

1. The largest of the Maritime Provinces is _ _?_ _.

2. The smallest is _ _?_ _.

3. The greater part of Nova Scotia is in the form of _ _?_ _ (a peninsula, an island, an isthmus).

4. Cape Breton Island is a part of the Province of _ _?_ _.

5. The boundary line dividing Nova Scotia from New Brunswick crosses a narrow neck of land which is known as an _ _? .

6. The Bay of _ _?_ _ is south of New Brunswick.

7. _ _?_ _ Bay is north of New Brunswick.

8. _ _?_ _ Strait is between Prince Edward Island and the mainland.

9. The Province of _ _?_ _ has more high land than the other two Maritime Provinces.

EARLY SETTLEMENTS

The first settled part of Canada · Of the three Maritime Provinces, Nova Scotia was discovered first, for it is believed that Cabot landed on its shores in his search for China. Even earlier, Norse and Icelandic voyagers touched these shores. Splendid fishing grounds brought sailors near Nova Scotia even before Jacques Cartier discovered the St. Lawrence River in 1534. Cape Breton Island, which forms a part of the Province of Nova Scotia, was named for the Breton sailors who early came to its shores from the province of Brittany in France.

As you have read, Champlain and his men were the first to attempt settlement in the Maritime Provinces. As Champlain sailed along the south shore of Nova Scotia, he found a rocky coast with many bays and headlands. Although he saw many fine harbours, he found this coast too exposed to the ocean and decided to continue his search for a more protected location. When he sailed around the western end of the peninsula, he found stretches of low-lying fertile land. The first settlement was made on Ile St. Croix, in the mouth of the St. Croix River. The winds and cold proved too bitter for the settlers the first winter, and many died. In the spring Champlain moved those who were left across the Bay of Fundy and founded Port Royal where Annapolis Royal stands today.

Near Annapolis Royal stands the replica, or copy, of the Port Royal "Habitation" which was founded by Champlain in 1605.

Courtesy of Canadian National Railways

A fishing village on the southern shore of Nova Scotia. The rough surface and the stony soils make farming difficult here.

About twenty years after Champlain left, Nova Scotia was granted by the King of England to a Scotsman, Sir William Alexander, who gave it the name which means "New Scotland." The Scots made no lasting settlement, and for almost one hundred years more the land was held by the French, who made a few small settlements. In 1713, *Acadia*, as the French called the Province, passed into the hands of the English, who began slowly to settle the country.

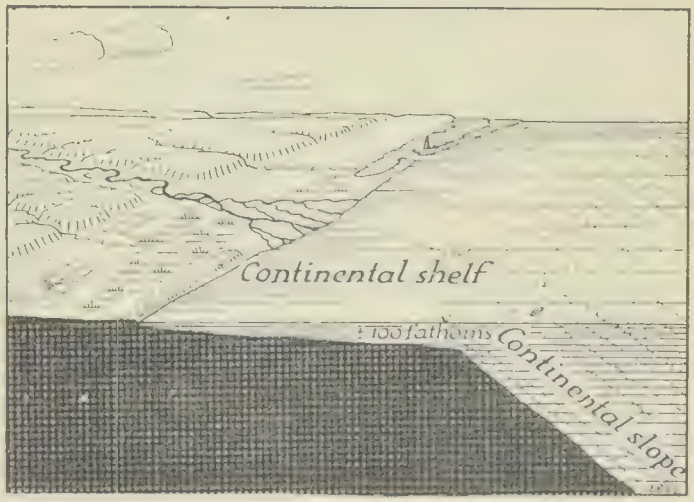
New Brunswick and Prince Edward Island were settled later than Nova Scotia. Loyalists who came to Canada after the American Revolution formed the largest group in New Brunswick.

THE FISHING INDUSTRY

Getting a living from the sea · From the first, settlers in Nova Scotia were interested in fishing. Although those who settled south of the Bay of Fundy found fertile farm land, those on the Atlantic coast found rocky ledges and thin soil. This meant that they had to get a great part of their living from the sea. Luckily for them, not far from their shores is one of the finest fishing grounds in the world. Cod, herring, salmon, and many other kinds of fish are found in large numbers in the cool waters all around the three Maritime Provinces.

The continental shelf and the Grand Bank · Along the northeastern part of the continent of North America is what is known as a *continental shelf*. Here the land dips gently beneath the sea, so that for some miles out from shore the water is not very deep. At the edge of the continental shelf the bottom of the ocean slopes more steeply. Fishermen call

A diagram showing how much the continental shelf resembles a real shelf.




A
68°
B
66°
C
64°
1
48°
2
46°
3
44°
4
St. Lawrence River
Q U E B E C
Dalhousie
Campbellton
Baie de Chaleur
MISCOU I.
SHIPPIGAN I.
HERRING
COD
IRON
Bathurst
TIMBER AND PULPWOOD
Restigouche R.
Edmundston
Nipisiguit R.
St. John R.
SALMON
OYSTER
Newcastle
Chatham
N E W
B R U N S W I C K
Perth
POTATOES
TIMBER AND PULPWOOD
Miramichi R.
Salmon R.
MIXED FARMING
OYSTER
FUR
North
Woodstock
Shediac
Moncton
FUR FARMING
GYPSUM
POTATOES
Grand Lake
Fredericton
St. John R.
Sackville
DAIRYING
Springhill
COAL
Chignecto Bay
Minas Basin
St. John
LOBSTER
St. Croix R.
St. Stephen
Blacks Harbour
SALMON
APPLES
Kentville
POTATOES
Windsor
HERRING
Passamaquoddy Bay
Fundy
Annapolis R.
FUR FARMING
APPLES
Bangor
Penobscot R.
Annapolis Royal
Annapolis Basin
GRAND MANAN I.
Bay of
T I M B E R
Bridgewater
Lunenburg
MT. DESERT I.
HADDOCK
TIMBER
Liverpool
Mersey R.
HERRING
Yarmouth
HERRING
MACKEREL
COD
LOBSTER
C. Sable
MAINE
N. B.
N. S.
MARITIME PROVINCES
Scale of statute miles
0 10 20 30 40 50 60 70 80 90 100
⊙ Capitals of provinces
---- Train ferries
Fishing banks
Uplands and plateaus
Mountains


64°
D
62°
E
60°
F
1
2
3
4
46°
44°
Gulf of St. Lawrence
NEWFOUNDLAND
MAGDALEN ISLANDS
(To Quebec)
HALIBUT
Cabot Strait
Grand Bank
COD
C North
North Point
COD
LOBSTER
PRINCE EDWARD ISLAND
OYSTER FARMING
Summerside
MIXED FARMING
Port Borden
Charlottetown
SEED POTATOES
Cape Tormentine
LOBSTER
Northumberland Strait
Pictou
MIXED FARMING AND DAIRYING
COAL
New Glasgow
Stellarton
Truro
GYPSUM
GOLD
Dartmouth
Halifax
HADDOCK
HERRING
MACKEREL
GOLD
CAPE BRETON ISLAND
GYPSUM
HERRING
MACKEREL
LOBSTER
PULPWOOD
COD
Inverness
GYPSUM
COD
COAL
Bras d'Or Lake
George Bay
Antigonish
FARMING
LOBSTER
Canso
C.Canso
GOLD
Sydney Mines
Glace Bay
N.Sydney
COAL
LOBSTER
Sydney
Louisburg
MACKEREL
FARMING
COD
COD HALIBUT HADDOCK
COD HADDOCK HALIBUT
COD HADDOCK HALIBUT
SABLE I.
COD
HAKE
HADDOCK
HALIBUT
ATLANTIC OCEAN
N
W
E
S

The location of the chief fishing banks of the North Atlantic Ocean.

this line where the steep slope begins the "drop off." Beyond this the water is very deep—far too deep for fishing.

It is on the continental shelf that the fish gather. Some parts of the shelf seem to provide a better supply of food than others. These are called fishing "banks." The largest of all the banks is off the shores of Newfoundland and is called the *Grand Bank*. The cold Labrador Current, which comes from the north, provides food for fish. Most of the more important kinds of fish which are used for food do well in cold water, for it is there that they find the small plants and animals on which they feed.

By international agreement, the great fishing banks off the coasts of Nova Scotia, Newfoundland, and eastern United States are for the use of all nations. Here are the world's greatest cod-fishing areas, which also yield large numbers of halibut and haddock. Cod, haddock, and halibut are what are called "bottom-feeding" fish. At certain times of the year they come to the banks and are caught when they are feeding on the bottom. Other fish, such as mackerel and herring, swim near the surface in great "schools," and when they *migrate*, or move from one part of the ocean to another, they are caught by the fishermen in large nets.

Look at the map on pages 20–21 and see how many different kinds of fish you can find. Notice, too, where they are caught. You may count lobsters and oysters as fish (although they are not true fish), for they are known as shellfish and come from the sea. They are advertised as "seafood."

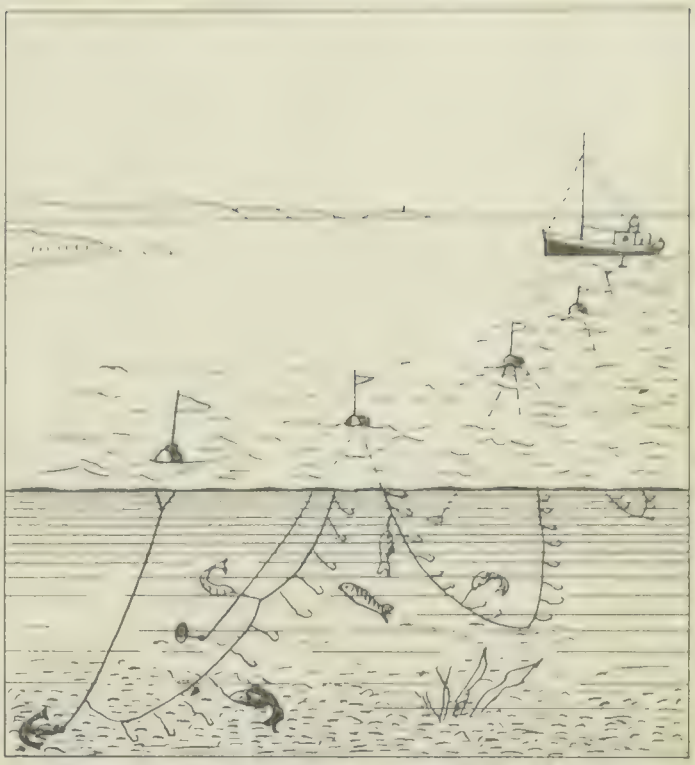
People of the sea · As the early explorers recorded, the Atlantic coast of the Maritimes

Hauling in a netful of herring in a harbour on the Bay of Fundy.

is a bleak and very uninviting shore. Against this rocky, barren coast break the waves of the open ocean. But, like the Norwegians, the people of the Maritimes have many bays and harbours in which their boats are safe, and where they can catch bait, mend their nets, and dry their fish. The people of the Maritimes, and particularly the people of Nova Scotia, are great fishermen and sailors. All along the coast you will see fishing boats and fishing nets; and if you want to hear real stories of the sea, you will creep up quietly when a group of Nova Scotia fishermen are telling "yarns." Fishing is a full-time job for them. They are deep-sea fishers, and the banks about which you read are their fishing ground. These men of the sea sail from such harbours as Sydney, Halifax, Canso, Lunenburg, and Liverpool. Although the fishing industry as a whole brings much wealth to Canada, the amount of money earned by each fisherman is not large.

Deep-sea fishing · Let us board one of the large fishing boats anchored in the harbour of Lunenburg. It is a schooner,—a wooden ship with two masts. Cut deeply into the planking we can read the words "*Courageous*, Lunenburg, N.S." This is the name of the ship and the name of the port from which it sails. Captain McDonald is the master of the *Courageous*. The schooner has an engine as well as sails so that it can travel at good speed. On the deck are a number of rowboats called "dories," which are tied securely to the deck so that they will not be lost when we put out to sea. Everyone on board a fishing schooner works, and the captain tells us that we shall learn how to clean fish when we reach the bank.

One by one the ships spread sail, and soon the whole fishing fleet is headed out of the harbour to open water and a month's fishing on the Grand Bank. As we near the fishing ground, the men place trawls in each dory.



A diagram showing how a trawl line is set out, with its many hooks and its wooden floats.

A trawl is a line of strong cord usually over half a mile in length. All along this line, about four or five feet apart, are tied other lines about three feet long, to each of which is attached several hooks. Each hook is concealed in a piece of fish, which is the bait. The captain selects the particular location which he decides is best, and the dories are lowered on to the waves. Compared to the schooner, these small boats do not look very safe, but they really are. The fishermen take their places with the skill gained from long experience at sea. There are two men to each dory, one of whom rows while the other pays out the line over a pulley at the end of the boat. Wooden floats are soon seen bobbing up and down on the water, marking where the end of one trawl is fastened to the end of the next.

The fishermen spend the day going from one end of the trawl to the other, pulling up the lines, taking off the fish, and putting fresh bait on the hooks. Each dory has several trawls; so two fishermen tend


COURAGE
RALPH G. SHEPHERD

several thousand hooks all day long. The dories may be several miles from the schooner, and they have to return to it at intervals so that the men can unload the fish and get more bait. When the catch is good, the dories return laden with cod, haddock, halibut, and hake. In the evening the dories return with their last load. Though the men are hungry and tired, they have to clean the fish and store them away in the hold of the schooner. On our schooner salt is used to preserve the catch, but on some ships the fish are packed in ice.

Do not imagine that deep-sea fishing is easy or pleasant work. The ocean is seldom smooth, and rarely as calm as a lake or pond. Sometimes great waves lift the little boats up and then let them down into the *troughs*, or deep hollows, between the waves. Usually it is cold, and often it is raining. Sometimes a fog settles down so that the schooner can no longer be seen. Because the Gulf Stream, which is a warm current of water that sweeps from the Gulf of Mexico northeastwards off the Atlantic coast, passes the Labrador Current south of Newfoundland, the Grand Bank is a danger zone as well as a good fishing ground. The winds blowing over the warm water from the south absorb moisture, and when these wet winds begin to blow over the cold waters from the north, the moisture suddenly forms very small drops which are seen as a cloud of fog. When a thick blanket of fog lies over the ocean, it is impossible to see in any direction, and fishing vessels are sometimes sunk in collision with large steamers.

As soon as the men on the schooners have caught all the fish the boats can hold, they return to their home port. There the fish that have been kept on ice are shipped away at once in refrigerator cars to Montreal, Toronto, or other cities of eastern Canada or of the United States. The fish that were salted may be sold as salt cod. The rest are

Courtesy of Canadian National Railways

Drying codfish near Lunenburg. The fish are turned over often so that both sides will get the sun.

spread on *flakes*, or racks, to dry. They must be turned over often, and stacked up and covered when it rains. Since dried codfish keeps very well even in a hot climate, much is shipped from the Maritimes in quantities to such warm regions as the West Indies, northern South America, and southern Europe.

Fishing from schooners is not the only kind of deep-sea fishing. Another kind is carried on with *trawlers*. These are run by steam engines and are larger and faster than schooners. Each trawler drags a bag-shaped net slowly along the ocean bottom. This net, sometimes spoken of as a "trawl," is, of course, not at all the same as the "trawl" line shown in the sketch on page 23. This net is soon filled with many sizes and varieties of fish, and is hauled in by a machine. The larger fish are emptied into the hold of the trawler, and the small fish are thrown back into the sea. Then the net is let down again.

Inshore fishing · Inshore fishing is carried on not far from the shore. Small boats put out in the morning and return with their catch towards evening. Most of the fish which are caught in this way are frozen and shipped away fresh.

Courtesy of Canadian National Railways

Prince Edward Island fishermen about to let their lobster pots down to the sea bottom.

Courtesy of Connors Brothers, Ltd.

Workers filling cans with sardines in the packing room of the cannery at Black's Harbour.

The catching of lobsters is an important inshore fishing industry in the Maritimes. Look at the map again and see where lobsters are found. They are queer, ugly, dark-green creatures having a hard shell and strong claws. They are not caught on hooks or in nets, but in wooden traps called *lobster pots.* These traps have a small opening at each end, and bait (usually a herring) is placed inside to coax the lobster in. Once in the trap, the lobster cannot get out.

Fish canneries · At Halifax, Sydney, and many other places around the shores of the Maritimes there are fish canneries. Many of the smaller herring are canned as "sardines." Do you remember another country in which sardines are canned? In still other factories the oil is extracted from the fish, and then the waste from the fish (such as heads, bones, and tails) is ground up to make fish meal, which is used for cattle and chicken feed and for fertilizer, both of which are shipped to the crowded countries of central Europe.

At Black's Harbour, New Brunswick, on the north shore of Passamaquoddy Bay, is one of the largest sardine factories in the world. More than 500,000 cases of sardines have been canned and packed in this plant in a single year. If we were to visit the plant, we could follow the sardines through the various steps in their progress from boat to can.

When a catch of sardines arrives at the factory, the fish are hoisted out of the boats and poured into tanks of salt water. During this process they are washed twice and passed over a wire mesh which removes any scales that may still be clinging to them. The next step is to place the fish on flakes so that they do not overlap. These flakes are about a yard square and are made of wire. The flakes are then placed in steam compartments, steam is let in, and the fish are cooked for several minutes. Next they are taken on the flakes into the drying room, where warm air is kept circulating through them. And at last they reach the packing room, still on the flakes.

In the packing room the flakes are placed on a belt conveyor, which carries them to tables where women workers grade them and cut off their heads and tails. Another conveyor carries the fish and cans to the packers, who fill the cans and place them in shallow pans holding twenty-five cans each; and still

another conveyor carries away the fish waste to the fish-meal plant. The filled cans go to the oiling machine, in which olive or vegetable oil is poured into each can; and after this they are placed in a machine which covers and seals them. Finally the packed tins are carried along to huge *retorts*, or containers, in which they are sterilized. From the retorts they move on a belt to drying tables, where they are allowed to cool before being labelled, wrapped, and boxed.

The canning of lobster meat provides work for large numbers of people in the fishing ports of the Maritimes. Some lobsters are shipped alive, on ice, to cities of the eastern United States, but more are canned and sent in that form to England, France, and many other countries.

Related industries · You have been learning of the ways in which the fishing industry provides work for many people. You can probably think of some other kinds of work that are closely related to fishing. For instance, ice must be provided so that fresh fish can be shipped to distant markets. This is not possible on the Pacific Coast.

Then there is the making and mending of fish nets, and the making of fishing tackle, ropes, anchors, and the many other articles that fishermen need. Still more important is the building of fishing boats of all shapes and sizes. In the days when all ships were built

Photo by Blackington

Mending his nets and lobster pots is an important part of this Nova Scotia fisherman's work.

of wood, Nova Scotia held a proud place in the shipbuilding trade; but since the days of iron-and-steel ships, this industry has become less important. Wooden boats of all kinds are still made in Nova Scotia, however—useful boats that fishermen sail in many waters, and numbers of row boats and motor boats.

In the harbours of Halifax and St. John there are dry docks so large that even ocean ships can be docked for repairs. This is important because, just as cars break down and require garages where they can be repaired, things sometimes go wrong with ocean vessels. These dry docks may therefore be thought of

A merchant vessel, disabled 450 miles from shore, being towed into the harbour of Halifax for repairs.

Halifax Shipyards, Ltd.

Courtesy of Canadian National Railways

Ships in a St. John dry dock. The ship in the foreground is in service between the British West Indies and Canada.

as garages where vessels can be serviced or repaired. A dry dock brings much wealth to the port to which it belongs. If a ship is tossed around by a North Atlantic gale and loses its rudder, a wireless message can be sent to the nearest port which has a dry dock. Immediately an ocean-going tug sets out from that port, puts a line aboard the ship, and tows it into port for repairs.

In addition to a dry dock, Halifax has cable repair ships in its harbour. From the shore of Nova Scotia underwater telegraphic cables have been laid to Britain and the Continent. Over these cables speed business and personal messages, and over them, too, travels the news which we read in our daily papers. Sometimes storms at sea break a cable and interrupt the flow of messages. When that happens, the location of the break can be determined fairly closely by means of electrical devices. Immediately a cable repair ship, which is always ready to sail on short notice, puts out to the break, pulls up the cable, and performs the necessary repairs.

SOME THINGS TO DO · **1.** By consulting your map, find the port from which you might go fishing for (*a*) cod; (*b*) herring; (*c*) lobster.

2. On the map on page 107 find railway lines over which might be shipped (*a*) fresh halibut from Halifax to Toronto; (*b*) fresh lobster from Prince Edward Island to Montreal.

In this connection you should know that there is a *train ferry* which connects Prince Edward Island with the mainland. A train ferry is a large ship which has railway tracks laid on the deck from one end to the other. When the ferry docks, the tracks on the ship are connected with the tracks on the shore, and the loaded cars roll on to the ship. This saves the delay which would occur if the cargo of the cars had to be unloaded on to a ship and then reloaded into cars again on shore. The ferry crosses Northumberland Strait, and then, on the other side, the train once more continues on its way. The Canadian National train ferry crosses from Cape Tormentine to Port Borden. See the map on pages 20–21.

3. Read about the fishermen of the Grand Bank in *Captains Courageous*, by Rudyard Kipling. Then write an account of the life of a deep-sea fisherman.

4. The next time you go to the grocery store, see if your grocer has any fresh, canned, or smoked fish that came from the Maritimes. If so, try to learn what place the fish came from, and find that place on your map.

5. Find pictures of sailing boats—either fishing boats or pleasure boats. Study carefully the shape of the sails and the way by which they are held to the masts. Learn the names of as many parts of a sailing boat as you can.

6. Ask your teacher to help you to find out about the life and habits of (*a*) a codfish; (*b*) a lobster.

7. Plan an exhibit suitable for a world's fair to advertise the fisheries of the Maritimes.

8. If you are fortunate enough to be acquainted with a Nova Scotia fisherman, ask him to tell you a yarn about deep-sea fishing. If not, perhaps you can find a book of such yarns in your school or town library. Re-tell one of the yarns in class.

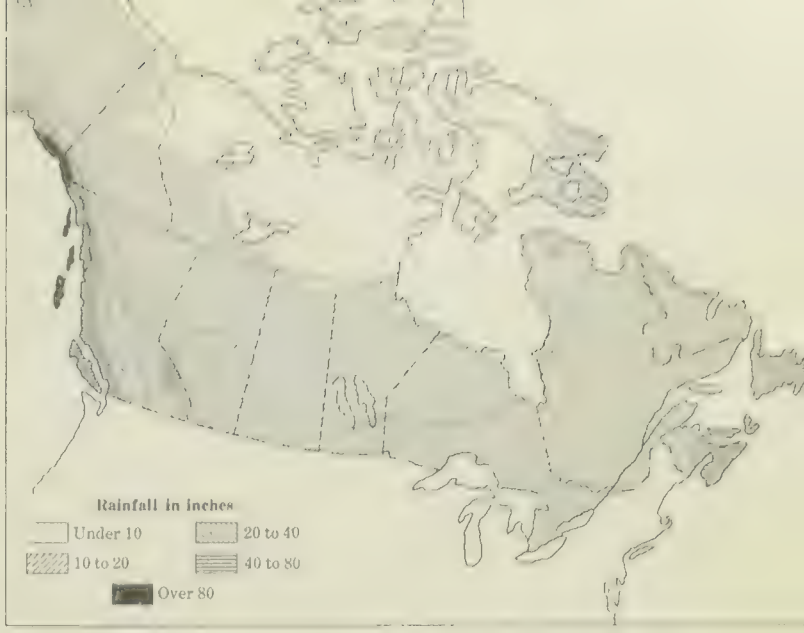
FARMING IN THE MARITIME PROVINCES

In the early days · The first attempt at farming in these provinces was made by Champlain's little band. You have learned how, after their first bleak winter at Ile St. Croix, they crossed the Bay of Fundy, and at Port Royal, on Annapolis Basin, they made a second settlement. There they found fertile soils for producing crops.

When the tides from the open ocean enter the narrowing Bay of Fundy, the water rises higher and higher. Near the eastern end of the bay the tide sometimes rises over forty feet, flooding the low shores. When the tide ebbs, plains of reddish mud are left uncovered. To these tidal plains the French government sent out colonists who knew how to build dikes. When the dikes were built, the colonists drained the rich land, and soon were able to raise large crops of hay and vegetables. Even today there is much diked land in Nova Scotia on the shores of the Bay of Fundy.

When the English conquered Acadia they found thriving farms along the coast of Nova Scotia, particularly around Annapolis and Minas basins. In 1755 the English turned many of the Acadian farmers out of their homes, and the diked lands were deserted for a time. The English settlers spread from Nova Scotia to Prince Edward Island and New Brunswick. Scottish settlers came, too, and settled in Nova Scotia, chiefly on Cape Breton Island. Germans also formed several settlements, particularly around Lunenburg. In time many Acadians came back to their old land, if not to their old homes, and within recent years French Canadians from the Province of Quebec have been moving into northern New Brunswick.

Present-day farming · What parts of the Maritime Provinces have been found to be most suitable for farming? The map on pages 20–21 shows you that farming is carried on all over Prince Edward Island. In fact, this island is sometimes called "The Garden of the Gulf," for, with its good climate and fertile land, much of it is well suited to the production of crops. In Nova Scotia the southern part of Cape Breton Island is also largely given over to farming, as is the area around the Bay of Fundy and south of Northumberland Strait. In New Brunswick the valley of the St. John River is a famous farming district.



Distribution of rainfall in Canada.

Why different crops grow in different regions · Why does farming in one part of Canada mean great fields of wheat as far as the eye can see, and in another part a very small farm where fruit and vegetables are grown? In order to find out why certain crops are grown, we should know what helps a farmer to decide how he can put his land to the best use.

The first thing to be considered is the yearly amount of rainfall, which means both rain and water from melting snow. Some crops, such as hay, need a great deal of rain, while others, such as wheat, will not ripen where the ground is wet for much of the time. Important, too, is the time of year that the rain or snow falls.

New Brunswick Government Information Bureau Photo

Courtesy of Canadian National Railways

A variety of farming scenes: cutting grain in the St. John Valley of New Brunswick; a dairy farm in Prince Edward Island; a potato farm in northwestern New Brunswick.

The length of the growing season is important. This is the part of the year between the last killing frost in the spring and the first killing frost in the autumn. Some crops, such as cotton or corn, need a long growing season and very warm weather in order to grow and ripen. Other crops, such as potatoes and oats, can be raised where the growing season is short and where the weather is cool, even in summer.

The amount of sunshine, too, is important. Where there is frequent fog some crops cannot ripen.

The soil is also important, and we shall learn about it later.

Another thing that a farmer has to consider is the distance between his farm and a market or place where he may sell his crops. If he is very far from a market, he must raise crops that do not spoil quickly, so that they can be transported without damage. If his farm is near a city, so that only a short trip is necessary, he can supply the market there with fresh vegetables, milk, and eggs.

All these things, such as amount of rainfall, length of growing season, hours of sunshine, soil, and distance from market, help to determine the types of farming you will find in various parts of the country. The most common farm of all is the kind on which some grain, hay, root crops such as potatoes and turnips, and garden vegetables are raised, and a few cows, pigs, chickens, and a horse or two are kept. This type of farming is called *mixed farming*.

Crops of the Maritimes · You have already learned that only in certain parts of the Maritimes is farming carried on. Because these fertile areas are limited, the farms there are not very large and mixed farming is common. There is plenty of rain during the summer; but since the spring is late and cold, the growing season is short. Because of these conditions, hay, oats, potatoes, and turnips

One of the many apple farms to be seen in the Annapolis Valley.

are the crops best suited to the Maritimes. Wherever you go in summer, you will see these crops growing on the farm lands. Since they make good food for cattle, you will find that nearly every farm has three or four dairy cattle.

The potatoes of Prince Edward Island and certain parts of New Brunswick are so good that they are shipped to many parts of eastern Canada. Potatoes for seed are sold in many parts of Canada and are shipped from St. John to many foreign countries. Seed potatoes must be grown very carefully, and only the very best can be used. This means, of course, that the farmer asks a higher price for these potatoes in order to pay him for the extra work that is necessary. Oats are also raised for seed in some parts of the Maritimes.

Fruits of various kinds are grown in the lowlands bordering the rivers. Hundreds of children, as well as grown-ups, are kept busy picking the raspberries, currants, gooseberries, strawberries, and blueberries which ripen in the summer sunshine. More strawberries and blueberries are being grown all the time, particularly in the western part of Nova Scotia, and quantities of these are shipped to the eastern part of the United States. Many of the bogs of Nova Scotia produce fine cranberries.

The apple is the best known of all Maritime fruits. Apple trees are found on almost every farm, but the Annapolis Valley is one of the finest apple regions of Canada. It is protected from strong winds by North Mountain and South Mountain. Because of the Bay of Fundy, the climate is milder and there is less danger from frost.

In the spring, people come long distances to see the Annapolis Valley with its fifty miles of apple blossoms. In the autumn the valley is a busy place. Pickers gather the fruit carefully. The apples are then sorted, packed, and sent to Halifax for shipment. Thousands of barrels are sent every year to England, where these apples are very popular. The valley has an advantage in being closer to England than any other Canadian apple region.

Before we leave the farm lands of the Maritime Provinces, let us visit a classroom in the Annapolis Valley and hear what two children have to say about farms and crops in their part of Canada.

A small part of John's apple orchard, as it looks when it is in blossom in the spring.

One September morning the air was sweet with the smell of crushed apples coming from the processing plant near the railway, not far from the school. Miss Robinson, the teacher, asked John Travers to tell about life on a farm.

"We live about four miles from Kentville," began John. "Father says that our land is almost perfect for an apple orchard, as it slopes gradually to the Cornwallis River. To the northwest we can see North Mountain about five miles away. Beyond it is the Bay of Fundy.

"We have about 20 acres planted with apple trees. This part of the farm is on the higher ground above the valley, where the cows graze. We also have a field of oats and a vegetable garden. We grow enough potatoes, carrots, beets, and other vegetables to last us the year round. At each season of the year there is something to be done on the farm. The trees need to be sprayed and pruned. Seeding and planting have to be done in the spring, cultivating throughout the growing season, and harvesting in the fall. Of course the cows have to be cared for all the year round."

Miss Robinson asked the class whether anyone wanted to speak about other kinds of farming.

"I do," said Mary. "I have an uncle who farms near Perth in New Brunswick near the State of Maine. That part of Canada and the part of the United States near by is famous for growing potatoes. My uncle has only a few apple trees on his farm, but he grows more than fifteen acres of potatoes.

"He also keeps cows," added Mary, "and grows oats and hay to feed them. He has a vegetable garden, and any produce that is not needed by the family is sold in the near-by towns. So you see, my uncle grows most of the food that the family needs, and at the same time earns money from his large potato crop."

MAP EXERCISE · **1.** On a blank map of the Maritime Provinces print in the names of the three provinces, the Bay of Fundy, Annapolis Basin, Minas Basin, and Northumberland Strait. Trace the St. John River and print in its name. With a green crayon draw a line around those parts of the province where farming is an important industry. Keep this map to complete later.

2. Turn to the map on pages 20–21 and find the regions marked "Mixed Farming." You can see that this is the most common type of farming in the Maritimes. Turn back to page 30 to make sure you understand what mixed farming is. Find the regions marked "Dairying," "Fruits," and "Seed Potatoes." On the map of the Maritimes that you have made, colour the areas where these four kinds of farming are carried on. Ask your teacher to show you how to make a key at the bottom of your map which will tell what you mean by your markings.

SOMETHING TO DO · Pretend that you have been sent from Britain to buy food from the Maritimes. Plan your trip, listing the regions you would visit, the crops you would find, the food products that might be bought for export, and the most convenient port from which each might be shipped.

FUR FARMING

The growth of fur farming · When you were studying the map on pages 20–21, you probably noticed the term "Fur Farming" in several places. You may be interested in the story of how fur farming was started. Back in 1894 a couple of Scotsmen on Prince Edward Island caught a few silver black foxes in order to attempt to breed them in captivity and raise enough to "harvest" their pelts, or skins, which were very valuable. To keep their new business a secret they had their fur farm on an island, so that when they went there, they could pretend to be taking care of the lobster pots they had put around the island. However, one winter when Northumberland Strait froze, a fox escaped over the ice to the mainland. Hounds trailed it back to its den, and so the secret of fox farming was discovered. The great industry then began in earnest, and since that time it has spread to many parts of Canada. In some places it is an important industry which gives work to many people. In others, farmers who find it difficult to make a living by farming in the usual way, keep a few foxes to earn a little more money. Sometimes other animals, such as mink and skunks are raised, but foxes are the animals most commonly raised for their fur.

You may be interested to read what a boy who goes to school in Halifax has to tell his classmates about his visit to a fur farm.

A Prince Edward Island fur farm · The children of Miss Jones's class were talking about fur farming one afternoon when Peter raised his hand.

"I know something about fur farming, Miss Jones," he said. "My uncle has a fox farm near Summerside in Prince Edward Island. He calls it a fox *ranch*."

"Tell us what you know, Peter," said Miss Jones.

One of the foxes on the Prince Edward Island fox ranch that Peter visited.

"I visited my uncle last summer. The foxes are kept in shelters something like dog kennels. To keep them from escaping, my uncle has a high wire fence around the place where the foxes are kept."

"How high is the fence, Peter?"

"I should say it is about nine or ten feet high, for the foxes are good jumpers. The height depends somewhat on the amount of snow in the winter. My uncle told me that the fence goes four or five feet below the ground to keep the foxes from burrowing underneath.

"Besides keeping the foxes in, the fence keeps people out. When a stranger goes near them, the animals often become excited and run about and climb up on the fence. So you see visitors like myself are not often allowed near the pens. The foxes do not like to be disturbed, and their little huts are built to keep out even light. My uncle says that, like most wild animals, the foxes try to find a dark hidden place when they go to sleep."

"What do the foxes eat?" asked Jane.

"Well," said Peter, "they are something like us. They like meat and fish and milk and cereals. However, the meat and fish must be fresh or else they won't touch it.

Since Prince Edward Island is surrounded by the sea, it is easy to get fresh fish, and the foxes are fed a lot of it."

"Thank you, Peter," said Miss Jones. "The foxes raised in Prince Edward Island have particularly fine pelts, because the cold winters force them to grow thick fur. The thicker and better the fur is, the more money the pelts are worth.

"In a country such as Canada, where winters are cold, the skins of many fur-bearing animals are needed for making clothing. When Canada was first settled, furs could easily be obtained by trapping wild animals. Today fur farms provide more than one fourth of all the furs produced in Canada."

FOREST RESOURCES OF THE MARITIMES

On the map on pages 20–21 find all the districts marked "Timber" and "Pulpwood." Timber usually means trees that can be sawn up to make boards, furniture and many other articles made of wood; while pulpwood is usually softwood that may be made into paper.

Which province of the Maritimes seems to lack timber? This does not mean that there are no trees there to cut, but that there are no real forests. Why do you think this should be so? Which province has the most timber? In what part of Nova Scotia are most of the forests? Why has this land not been cleared for farming?

Kinds of trees · Many of the trees in the forests of the Maritimes are softwoods, and most of these are what are known as *conifers*, or cone-bearing trees. These are evergreens, which do not drop their needle-shaped leaves during the winter. In the Maritimes pines, firs, spruces, and hemlocks are the principal coniferous trees. The larger trees provide much of the timber used in construction, while the small trees are used in the manufacture of wood pulp for paper.

Other trees that are found in the Maritimes are the oak, elm, maple, and birch. They are hardwoods and have broad leaves, and most of them are deciduous; that is, they lose their leaves during the winter.

Lumbering · In New Brunswick some of the forests are very thick, and in places, chiefly in the northern part of the Province, cutting has not even begun. However, each year lumbermen go farther and farther into the forests. The *lumberjacks*, as they are called, go into the woods in gangs in late autumn. A camp is built, and cutting begins. All winter the men work cutting down the big trees, chopping off branches, sawing the trunks into convenient lengths, and hauling them to a river, where they pile them on the bank. In the spring, when the ice and snow begin to melt, the logs are rolled down the bank into the water and are floated downstream to the sawmills or the pulpmills. If you were to fly over New Brunswick in the springtime, you would see logs floating on most of the rivers.

A lumberjack's story · Here is the story that a lumberjack has to tell about his work in the forests of western New Brunswick along the Miramichi River.

"My name is Jules Trudeau. Ever since I was a small boy I have wanted to work in the woods. Now here I am, and I would not change for any other life. How sorry I am for those fellows who work in factories in the cities!

"Most of our work is done during the winter, but in the summer the lumber company sends out men called timber cruisers, either by air or on the ground, to decide where our winter 'cut' will be. In the fall, we come in to our new limits and begin to cut down the trees and clear the land for our camp. This is usually built beside a lake or river, or where there is a good spring for drinking water. After the trees are cut down,

Courtesy of Canadian National Railways

A winter scene in a New Brunswick lumber camp.

we square the logs and set up buildings: a house and office for the foreman, bunkhouses, a cookhouse and dining hall, stables for the horses, and a machine shop. These buildings are roughly made, for they will be used for only two or three years; but they must be warm because the winters are cold along the Miramichi River.

"While some men are putting up the buildings, others are busy cutting roads through the forest, and still others are working on the river and its tributaries. Since it is down this river that the logs are to be floated when the spring thaw comes, the main river must be cleared of all fallen trees or other obstructions. Across the tributaries, some distance from where they join the main stream, log dams are built to hold back the water until it is needed.

"At last it is time for the cutting to begin. The trees to be cut have already been marked. The cutters work in pairs. First they notch the tree so that it will fall in the direction they wish; then, with a crosscut saw, they begin the actual cutting. Where skilled cutters are few, a power saw is now used; this makes it possible for one man to work alone. It requires skilled men to send a tree down where they want it without tangling its branches in other trees.

Clearing ground with a bulldozer for a road through the forest.

New Brunswick Government Information Bureau Photo

International Harvester Company

Hauling logs to the river with a tractor.

New Brunswick Government Information Bureau Photo

Log drivers "running" the logs downstream.

"When the tree is down, other men cut off the branches and saw the trunk into the right lengths. Still other men, called 'skidders', fasten chains around the logs so that horses may drag them to the road. Here they are stamped with the company's mark and piled up by the roadside.

"As soon as there is enough snow, and the ice on the river is strong enough, the business of hauling the logs to the river begins. In the old days horses were used for this work, but now a caterpillar-tractor draws a whole train of sleds loaded with logs. Out on the ice the log train goes unless the bank is too steep. In that case horses have to take the loads down one by one. On the ice the logs are unloaded and piled neatly, all headed downstream. Before the ice goes out in the spring, government inspectors go over all the piles with the foreman and count the logs. This is necessary because any company cutting lumber on *crown lands*, or lands belonging to the province, must pay *royalty*, or fee.

"Day after day our work is much the same. We get up very early, dress, and wash in the wash-rooms at one end of the bunkhouse. You would be surprised to see how much breakfast we eat, but you must remember that we have to work hard all day long in the frosty air. At noon we usually have a cold lunch, which we carry with us. However, if we are not far from camp, a warm lunch of thick soup or baked beans may be brought to us. When it is too dark to work any longer, we go back to camp for dinner. I can tell you that is a meal! We are very hungry, and as we sit around the long tables, we do not talk much, we just eat. Usually we end the meal with pie, and always we can have a second piece, or even a third. They say our cook is the best in New Brunswick, and we believe it.

"After we have eaten all we want, we sit around on our bunks, or at the little tables by the roaring stoves. Some of us read magazines, and others play cards or checkers. Sometimes we sing. My friend, Gerard, has a fiddle, and three of the others have mouth organs; the rest of us sing or whistle, and keep time with our hands and feet. Soon we begin to be sleepy, and, one by one, we turn in for the night.

"The spring drive is the most exciting time of the year. The snow begins to melt, the roads through the woods become muddy, and at last the river ice breaks up and the logs begin to float downstream. All the dams on the tributaries have been closed; but even so, the water in the river is high and the logs race along. We must follow them to keep

them moving and to see that they do not jam. Sometimes, in spite of all our care, a jam forms, and hundreds of logs pile up on top of one another, blocking the river so that it may overflow its banks upstream at that point. Then the most skilful men on the river go out on to the jam and try to find and pull out the log that is causing the trouble. If this is not enough, they set off a charge of dynamite beneath the jam. This loosens the logs and lets them continue their journey downstream. If the men who go out to break the jam are not quick and clever on their feet, they can be rolled over and killed as the logs come loose.

"When the first 'run' is over, some of the men go back upstream and collect any of the logs left behind that bear their company's stamp. They drag or roll these to the river's edge with their peavey poles, which are poles having a strong, sharp spike at the end. When all the logs are collected, the closed dams are opened, letting out the water behind them. This rushes down into the main river, carrying the rest of the logs with it.

"When all the logs are safely behind the 'boom' of the company's mill pond at the sawmill, we receive our pay and go home to our families, whom we have not seen for months. We are glad to be home, as you may imagine; but when the cold weather comes again in the fall, most of us think only of returning to the woods."

Sawmills and pulp and paper mills · The logs which go to a sawmill from the forest are gathered into a quiet pond to be stored until they are needed. Day after day they pass into the mill in an endless procession. From inside the mill comes the constant screech of the great circular saws as the logs are cut up into boards. And from the other end of the mill come piles of boards still smelling of the forest—the fresh, clean smell that every woodsman loves. The boards and planks are then shipped away to the lumber yards of the towns and cities to be used in building homes and in many ways in construction and industry.

Pulpmills are usually larger than sawmills, since they require much more and expensive machinery. Both New Brunswick and Nova Scotia have pulp and paper mills. Although most of these mills are not so large as those of Quebec and Ontario, they have the advantage of being nearer to Europe. From mills on the coast the paper can be loaded directly on to ships.

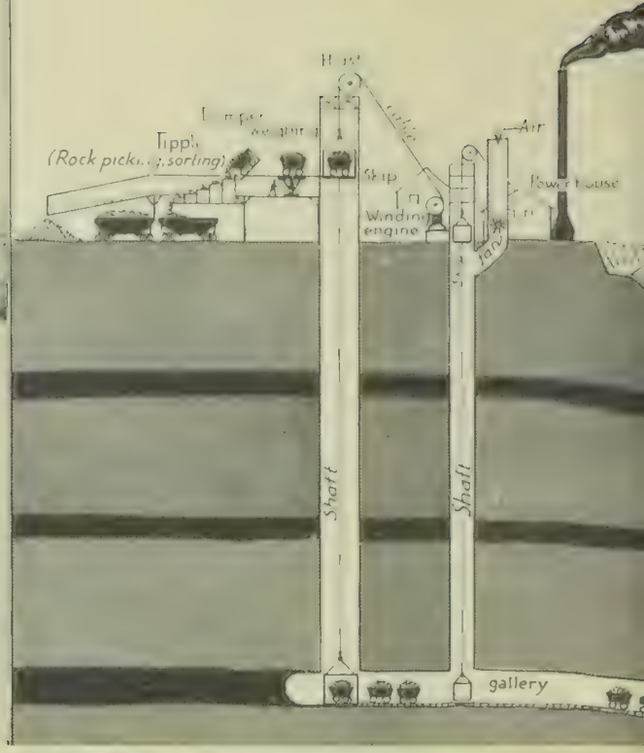
SOMETHING TO DO · Find the rivers down which logs float to the sawmills at Campbellton, Chatham, and Fredericton, and to the pulpmills at Bathurst, Edmunston, and Liverpool. Which is the longest of these rivers? Which one flows into the Baie de Chaleur?

The winter cut of logs behind the "boom."

Courtesy of Canadian National Railways

A pulp and paper mill at Bathurst.

New Brunswick Government-Information Bureau Photo



The buildings of a colliery, or coal mine, in Nova Scotia. Here, at Glace Bay, mining is carried on several miles out under the sea. At the right is a diagram showing some of the workings of the mine. Study the diagram and the picture together.

MINING IN THE MARITIMES

Minerals are treasures that Nature has stored in the earth. Sometimes they are found on or near the surface of the ground, but usually they are hidden deep down in the rocks. Look up the word "mineral" in your dictionary to make sure you understand what it means. Make a list of all minerals you have heard of and compare your list with the lists of other members of your class.

Coal mining · The most important mineral in the Maritimes is coal. Many men are kept busy mining the coal found in Nova Scotia, particularly at Glace Bay, and at Sydney Mines on Cape Breton Island, and in New Brunswick. Deep shafts, or tunnels, are sunk far down into the earth, and from these the miners dig galleries, or side tunnels, which extend in all directions,—sometimes under the sea. Coal, as you know, provides fuel for factories, homes, ships, and railways. It is also one of the raw materials used in the manufacture of dyes, nylon, and some medicines. Since Quebec and the New England States have no coal, Nova Scotia is able partly to supply their needs in addition to those of Prince Edward Island.

Let us visit a Nova Scotia coal mine and see for ourselves how the coal is obtained. Mr. Bell, the mine manager, is going to be our guide.

"I'm glad you have on your old clothes," says Mr. Bell. "Coal mines are dirty and dusty places. Let us go to the lamp house and get an electric lamp for each of you. The main passages in the mine are lighted, but we'll need individual lamps if we are to see in the side roads."

Having got the lamps, Mr. Bell leads us towards the shaft, past a big building. The door to this building is open, and as we look in we see an engine driving a huge drum round which is coiled a wire rope. From the drum the rope runs upwards and out through a hole in the side of the building.

"This is the winding engine," Mr. Bell explains. "The rope that you see runs over a big wheel above the shaft and is attached to

the *cage* which runs down to the workings where the coal is. The man who runs this engine has a very responsible job. He must see that he stops the engine when the cage is exactly at the top or bottom of the shaft. He cannot see the cage, but he has a pointer on a dial in front of him which shows just where the cage is."

As we walk towards the shaft, we have to cross lines of railway tracks. On these are freight cars; some are full of coal and others are empty. The empty cars will be run on to tracks which pass under a building called a *tipple house*. The coal is brought up out of the mine in small cars, which are hoisted to a platform above the tipple. From the cars the coal is dumped into the tipple, where it is weighed, sorted, and then allowed to fall into the coal cars waiting on the tracks below.

At the top of the shaft we wait for a minute or two until the cage comes to the surface. The loaded cars are drawn off, and we step on. Tom remarks that it is just like stepping on to an elevator in a department store.

The gate closes, a bell rings, and we are off! Down, down, down into the earth we travel, far faster than any department store elevator. In the dim light of our lamps the walls of rock seem to be rushing upwards. Now and then we hear the trickling of water, and a drop or two splashes into our faces. We can see water glistening on the walls of the shaft.

"What happens to all this water?" asks Jim.

"It runs down to the bottom of the shaft, and then we pump it up to the surface to keep the workings from being flooded. Some mines are 'dry,' but here we have to go to a lot of trouble and expense to get rid of the water."

Suddenly our speed slackens; we go more and more slowly and then, quite gently, come

Dominion Steel and Coal Corporation, Ltd

Here the coal is dumped into the tipple.

Dominion Steel and Coal Corporation, Ltd.

Miners reaching the bottom of the shaft.

Testing for explosive gas with a safety lamp.

Dominion Steel and Coal Corporation, Ltd.

Dominion Steel and Coal Corporation, Ltd.

A train in the main "haulage way" of the mine. This "haulage way" is three and a half miles long.

to a stop. The gate opens, and we step out into a tunnel lit by electric lights. We had no idea it was like this a thousand feet below ground. Here, just as on the surface, there are railway tracks, only these tracks are narrower than the surface tracks. As we watch, trains of loaded cars appear out of some of the passageways which come in from all directions, and we see trains of empty cars disappearing into other passageways.

"Where are the ponies?" asks John. "I thought you used ponies to pull the coal cars."

"Not in this part of the mine," says Mr. Bell. "We use about fifty ponies in the deepest parts of the mine and near the workings. They haul out the loaded cars to the 'haulage way,' and from there the electric locomotives that you see draw the cars to the hoist. The ponies know their jobs as well as the drivers. The little animals have underground stables and are rarely taken to the surface until they are too old for further work."

We follow Mr. Bell down one of the tunnels, watching carefully to see that we do not trip over the tracks or bump our heads on the low roof. Every now and then we step aside into a niche, or hollowed-out space, in the tunnel wall as a train of cars rumbles by. These niches have been made for the safety of the miners.

After quite a long walk we come to the "working face," where the miners are digging out the coal. Coal is found in layers, or *seams*, something like the filling in a layer cake. The "cake" above and below the coal "filling" is rock. Here the seam is three feet thick. To get the coal out, the miners undercut it with compressed-air cutters. These are like the noisy drills workmen use when they have to cut openings in cement roads. The coal is blasted out at the bottom, loaded into cars, and taken to the surface.

"In some mines," says Mr. Bell, "the seam is five or six feet thick. Here, where it is thinner, we have to blast out a good deal

of rock so that our passageway will be high enough to move in men and cars as the coal is dug out. Often the walls and ceilings have to be braced with props and blocks to prevent them from falling in."

Back at the surface, in the tipple house, we watch the coal being loaded on to railway cars and hauled away to wherever it is needed. The mine which we have visited is near the sea, and so some of the coal is moved away by boat, as this is cheaper than by rail.

At Sydney, near the coal mines, there are large steel works. Steel is made from iron, and limestone and coal are used in making it. No iron is found in Nova Scotia, but there are iron mines across the Gulf of St. Lawrence in the southeastern part of Newfoundland. The iron ore is shipped to the coal at Sydney, and some of the limestone used is found not far away. The type of steel manufactured in the great rolling mills in Sydney is *structural steel*, which is used in constructing buildings, railways, bridges, and ships.

Gypsum and salt mines · Gypsum is a mineral found in many parts of the Maritimes. Look for it on your map on pages 20–21. It is soft and is more easily mined than coal. Gypsum is used in making such things as tiles and plaster of Paris, and as a fertilizer. In Nova Scotia there are salt mines, the one at Malagash being the largest in Canada. What Maritime industry have you already heard of that requires much salt?

SOMETHING TO DO · See if you can find out about ways of making steel from iron ore (see pages 102–103) and the two methods which are used. List some of the many uses of steel.

Dominion Steel and Coal Corporation, Ltd.

Pouring white-hot iron into a furnace, where it will be turned into steel, in a Sydney steel plant.

MANUFACTURING

We have already learned how the greater number of the people of the Maritimes make their living from the farms, the sea, the forests, and the mines. But many are also busy manufacturing, or making, things that they and these other people need. This is particularly true, of course, of those who live in the cities and who have no way of farming, fishing, mining, or cutting lumber.

When people manufacture they use either the things round about them or those they can obtain easily from outside their locality. From these beginnings, or raw materials, they make either something they use themselves or something they can send away to sell elsewhere.

In the Maritimes there are many raw products for manufacturing. Wood pulp, paper, and various forms of lumber are made in mills and factories from the products of the forests. In other factories fish and lobsters are canned and fish meal is made. From the farms come many foods to be processed. Fruit is canned, apples are dried or made into cider or juice, oats are ground into flour,

Royal Canadian Air Force Photograph

On the far side of the busy harbour of Halifax is the town of Dartmouth. Its sugar refinery may be seen in the centre background, and its oil refinery at the right.

and milk is made into butter and cheese. Because of the importance of farming, the manufacture of farming machinery and tools has also become important. You have learned that there are steel mills at Sydney. Where does the iron come from that is manufactured into iron and steel products in those mills?

Much of the manufacturing in the Maritimes is carried on in small towns and villages, but it is in the cities that we shall find manufacturing at its busiest.

CITIES OF THE MARITIMES

Halifax · In our visits to the cities of the Maritime Provinces our first trip will be to Halifax, which is the capital and largest city of Nova Scotia. It is an old city and is built on a hill which looks out over its beautiful harbour to the sea. Halifax has botanical gardens with flowers and trees from many parts of the world. It also has many interesting buildings: the Parliament Buildings, where the government of the Province is carried on; a university, which is one of the oldest in Canada; and a citadel, or fort, which was once a great protection to Halifax.

The harbour at Halifax is so large, so deep, and so well protected from the storms of the ocean that it is used as a naval base. During the war it was especially busy in connection with sending men and supplies overseas. Not only is Halifax one of the two chief ports of the Maritimes, but during the winter months, when the St. Lawrence is closed by ice, it becomes one of the two ports of eastern Canada. See the picture on page 17.

If we visit the docks, we may see trains unloading their freight directly on to waiting steamers; or we may see barrels of apples, boxes of codfish and fish meal, piles of lumber, and kegs of nails on the docks waiting to be shipped out. From the cold storage plant near by have come butter, cheese, and meat; while from the grain elevators has come wheat that has travelled all the way from western Canada. All these products which are being shipped out are called *exports*.

Imports are the goods which come in from other countries. Over here we see a ship from the West Indies from which sugar and molasses are being unloaded. The next ship which arrives from those islands may bring bananas, oranges, and other fruit. Another ship has brought bales of cabinet wood from Central America, which are being stored in a warehouse; and still another ship has brought spices, coffee, tea, cocoa, and other products from faraway hot lands. Some of these imports will be manufactured in Halifax before being sent inland by train. Raw, or impure, sugar is refined into the white crystals which you know; sugar and cocoa are made into candies; while sugar, flour, and cocoa are combined to make biscuits.

Dartmouth · Across the bay from Halifax is Dartmouth, where more manufacturing plants are found. There are oil refineries here where crude, or unprocessed, oil is brought in from Peru, California, and Mexico and made into gasoline, fuel oil, kerosene, and other oil products. Near by is a large airport, used by the city of Halifax and the surrounding district.

Imperial Oil Limited

Some of the crude-oil and oil-products pipe lines of an oil refinery at Dartmouth.

St. John · In New Brunswick we visit St. John, the largest city of the Province, which is at the mouth of the St. John River. St. John is the chief port of New Brunswick, and, like Halifax, it serves all eastern Canada during the winter months.

We see many manufacturing plants in

The business district and part of the harbour of the port of St. John.

James Sawders

Courtesy of Canadian National Railways

The crowded railway yards of Moncton are proof of the city's importance as a business centre.

St. John. There are the lumber mills in which New Brunswick timber is prepared for shipment to England and the United States; plants which make the rope needed by fishermen and sailors; sugar refineries; candy factories; and places where the imported coffee and tea are processed.

There are large docks around the harbour, and much the same kinds of activity go on here as at Halifax. Here, too, are elevators in which grain from the west is stored before it is exported. We are shown a frost-proof warehouse, where fresh fruits and green vegetables that have been brought in from warm countries are safely stored during the cold weather.

Moncton · Moncton is the second largest city in New Brunswick. Let us look at the map for an explanation of its importance. You will see that it is at the upper end of the wide mouth of a small river and is near the Isthmus of Chignecto. This means that all the railways and most of the main roads from New Brunswick to Nova Scotia pass through Moncton. It is also the centre of a fertile farming region. You can easily understand why Moncton is a busy city where there are stores and factories and railway yards, and where people come to do their shopping and marketing. The large airport is used by planes going to Newfoundland and Britain and to northern Canada, as well as to the West and the United States.

Fredericton and Charlottetown · The capital of New Brunswick is Fredericton, on the St. John River. It is a beautiful town, with pleasant homes along streets that are shaded by trees. It has a factory in which the canvas canoes so widely used in the Province are made, and another in which are made heavy leather boots worn by lumbermen and hunters. The provincial university, famous for training forest scientists, is in Fredericton.

Charlottetown, the capital of Prince Edward Island, is a quiet, pleasant town; much the sort of town we should expect to find on a small island where most of the people are farmers and ranchers.

THE NEWEST INDUSTRY IN THE MARITIMES

In many parts of the United States people live closer together than do those who live in the Maritimes. This is especially true of the eastern part of the United States. Also, in most parts of the United States the summer weather is warmer than in the Maritimes, for most of that country is farther south than this part of Canada. So at holiday times many of the people from the hot, crowded cities of the States who want to get away where it is cool and quiet come to the Maritimes. These tourists come by train, by boat, by car, and by plane. Some of them have built cottages, camps, or summer homes; others stay in hotels or boarding houses, or camp along the way. Swimming, fishing, sailing or boating, hunting—all these things the tourists enjoy. And the business of providing food, shelter, and amusement for the tourists gives work to many people. As more and more tourists visit Canada, the tourist trade will become an even more important industry than it is today.

SOME THINGS TO DO · **1.** On a table or sand tray set up any one of the following:

a. A New Brunswick lumber camp.
b. A Prince Edward Island fox farm.
c. A Nova Scotia fishing village.

Be sure to find out from pictures or books how everything should look. When you have finished, explain your project to your classmates.

2. Write a letter to a friend describing one of the following:

a. An apple orchard in the Annapolis Valley.
b. A dairy farm in the Minas Basin.
c. Gathering the potato harvest in the St. John Valley.
d. A visit to a sawmill in Campbellton.
e. A trip to a coal mine at Glace Bay.
f. A visit to the wharves at Halifax.

You will have to use other books to do this. Consult the list of books at the end of this page.

3. Re-read this chapter and make a list of all the advantages of the Maritime Provinces. Then make another list of their disadvantages, such as their distance from the well-settled parts of the rest of Canada.

4. Where in the Maritimes would you be likely to find the following?

a. A rocky wave-washed coast.
b. The Parliament Buildings of Prince Edward Island.
c. The University of New Brunswick.
d. A citadel.
e. A steel mill.
f. A sugar refinery.
g. A cold storage warehouse.
h. A pulp mill.
i. A grain elevator.
j. A train ferry.

5. Men like Bliss Carman and Charles G. D. Roberts have written poems and stories about the Maritimes. Perhaps you can find some of these. They will give you a good idea of what the country is like. You may have read *Anne of Green Gables*, by L. M. Montgomery, which describes life in Prince Edward Island.

6. On page 240 find the population figures of Halifax and St. John. Do not try to remember the exact figures, but see how they compare with the population of your home town.

EXTRA READING · A book to tell you more about Nova Scotia:

Nova Scotia at Work, by H. P. Jenkins (Ryerson Press)

Books for teachers, with descriptive material:

In New Brunswick We'll Find It, by Lowell Thomas and Rexford W. Barton (Appleton-Century)
Over on the Island, by Helen Jean Champion (Ryerson Press)
Down in Nova Scotia, by Clara Dennis (Ryerson Press)
More about Nova Scotia, by Clara Dennis (Ryerson Press)
To Nova Scotia, the Sunrise Province of Canada, by T. Morris Longstreth (Ryerson Press)
Bluenose: A Portrait of Nova Scotia, by Dorothy Duncan (Harper, New York; Collins, Toronto)

Courtesy of Canadian National Railways

Montreal, the largest city and the leading Atlantic seaport of Canada.

THE PROVINCE OF QUEBEC

THE EARLY HISTORY

The coming of the French · After Jacques Cartier's voyages, about which you have already read, nothing was done to colonize Quebec until July, 1608, when Champlain, the founder of New France, started to build his "Habitation" at Quebec. He had chosen a pleasant spot at the foot of a high cliff, and one where his settlers were not likely to go hungry. Berries splashed the bushes with bright colour. Plenty of fish and eels could be caught in the river. In the woods to the north were deer and moose. As soon as land was cleared, the settlers planted small gardens. For weeks the woods rang to the sound of axe and hammer as the men cut logs for building three two-storey buildings and a storehouse to shelter the little company. It seemed as if Champlain had really established a new colony for France.

Then came a long, hard winter. Disease broke out among Champlain's little band. One by one the men fell sick and died, until, when the snows melted and spring came, only eight of twenty-eight were left alive. An ordinary man would have lost heart and planned to return to his homeland, but Champlain was no ordinary man. He had the kind of brave pioneer spirit which has helped to make Canada the great country it is today. He refused to give up. In June his courage was rewarded: a French supply ship came sailing up the St. Lawrence.

With new men to keep the "Habitation" going, Champlain was able to join a band of friendly Indians who wanted his help against their enemies, the Iroquois. In this way he

could explore the country beyond Quebec and find out where he could trade for furs. They followed the St. Lawrence until they came to the mouth of the river now known as the Richelieu. Turning south, they paddled up this river to its source in a beautiful lake which now bears Champlain's name. Here they met the Iroquois and put them to flight—a victory which brought upon the French the hatred of the powerful Iroquois.

This was only one of the trips made by Champlain. On the Ottawa River, on Lake Huron, and on Lake Ontario he travelled with the friendly Indians, exploring, studying the habits of the Indians, and building little trading posts to which they could bring their furs. To tell the whole story of Champlain's adventures would take more space than this book would allow. By using other books you will be able to find out more about this daring explorer, the founder of New France.

Other eager young Frenchmen followed the trail blazed by Champlain. These Frenchmen did not themselves catch the beaver and other animals the fur of which was so much prized. Instead they traded with the Indians.

In the winter, when the weather is cold, the fur of an animal is heaviest and thickest. The Indians therefore trapped the animals in the winter and traded with the French in the spring. As soon as the ice thawed in the streams, the traders loaded their canoes with goods brought from France and set off, singing, for the Indian country. When they arrived at the regular meeting-place, they quickly unloaded their canoes and spread their wares on stands built all along the shore. There the Indians flocked to trade their furs for guns and knives, tea and sugar, beads and blankets. When the trading was over, there was feasting and dancing. Finally the Frenchmen piled their furs into the canoes and started back on the long journey to

Indians carrying Champlain's canoe over a short trail between two rivers.

Quebec. From there the furs were started on the long journey by ship to the big fur markets in France.

Talon develops the colony · In 1665 the King of France sent Jean Talon to take charge of New France, which at this time had only about 3000 people. Talon was a very wise and able man. He decided that the colony would never prosper unless it had a larger population. He persuaded the government of France to send out many new settlers. He

Frenchmen trading with the Indians for furs. What sort of goods did they offer in exchange?

Canadian Pacific Railway

The people who live in this old stone house raise vegetables to sell in near-by Quebec.

also encouraged the young people in the colony to marry early by refusing to allow unmarried men to engage in the fur trade.

To many of the new settlers Talon granted lands. Each of these grants of land was called a *seigneury*. Usually it included about a half mile of the shore of the river and ran back several miles. The seigneurs, as the men to whom the land was granted were called, had to clear the land and to settle on it a number of tenant farmers.

Each of the tenant farmers wanted to have his farm touch the St. Lawrence, which was the main highway, since there were no roads through the thick forests which lined both banks of the river. This is how the long, narrow farms developed, some of which are shown on page 15. Later on, many of the tenant farmers wished to divide their farms among their sons. Each son wanted a frontage on the river, and so the farms became narrower and narrower.

Talon imported into the colony sheep and cattle as well as horses. He encouraged the farmers to raise sheep for their wool. The wool was spun on old-fashioned spinning wheels. Then the farmer's wife wove it into "homespun" cloth from which the clothes were made. Talon encouraged the farmers to grow more grain and vegetables so that the settlers need not depend on France for their food.

Talon also started industries in the young colonies such as lumbering and shipbuilding. With the ships that were built, the people of New France were able to trade with the West Indies, exchanging fish and lumber for rum and molasses.

Life in New France · We have read of the life of explorers and traders, but how did the people live who stayed at home on the little farms?

The houses were built solidly either of squared logs or of stone. There is much good building-stone in the St. Lawrence Lowland, and a stone house helps to keep out both winter cold and summer heat. The houses had pointed roofs and wide eaves. Some of these old houses still remain after almost three hundred years. You will see a picture of one on this page. Inside there were three or four rooms and a large attic upstairs where the children slept. Of course there were no furnaces nor even stoves in those days, but there was always one huge fireplace and sometimes two. At one of these most of the cooking was done, but the bread was baked outdoors in a bake oven made of stones, mortar, and earth.

The settlers had plenty to eat as a rule: fish, venison, or deer meat, pea soup, potatoes, wheat bread, corn or buckwheat cakes with maple syrup, and milk. Berries were plentiful: raspberries, blueberries, cranberries, blackberries, and gooseberries; and these were often dried for winter use.

Most of the clothing of both men and women was made of wool, spun and woven by the women of the household. Moccasins or heavy boots made of hides, called *bottes sauvages*, were worn over several pairs of home-knitted woollen stockings. Furs were plentiful and cheap for winter clothing.

In the early days of New France carioles were a favourite means of winter travel.

In the winter, when there was less work to be done, families drove along the snowy roads to visit their friends. Their homemade sleigh was called a "cariole." It was built high in the back to serve as a windbreak and as low as possible so that it would not overturn when the snow drifted badly.

The centre of every village was the church, with its tall spire and its bell to call the people to worship. *Monsieur le curé*, the priest, was the friend and advisor of the villagers.

It was not an easy life these people lived. They worked hard and lacked many comforts, but they made the best of what they had.

The coming of the English · From the time that Champlain set up his "Habitation" in New France, settlement by the sturdy French pioneers was never entirely given up. They carried on explorations and finally came to claim North America as far west as the Canadian Rockies, and south along the Mississippi River to its mouth.

Meanwhile, the English had settled in much greater numbers along the Atlantic seaboard in what is now the United States. Finally a war in Europe between the French and the English spread to the colonies in the New World. France was unable to help her colonies along the St. Lawrence, and in 1759 Canada passed into English hands. The deciding battle was won by the English soldier General Wolfe on the Plains of Abraham, behind the city of Quebec. Soon English colonists came out to settle beside the French.

Since that time the population, both French and English, has increased. Descendants of the early French settlers are now in every province of Canada, but in the Province of Quebec they form about nine tenths of the population. This means that in some ways the Province of Quebec is different from the other provinces. All public notices in Quebec, such as those found along highways and in railway stations, are printed in both French and English, and many of the laws of the Province are those brought by Champlain and his followers from Old France. During the passing years, French and English have learned how to live and work side by side.

Quebec is the largest province of the Dominion. It is larger than Alberta and Saskatchewan together, and very much larger than the three Maritime Provinces; and in it live about one quarter of all the people in Canada. Most of these people live close to the great rivers of the Province.

Now work out the exercises on pages 60–61.

A QUICK SURVEY OF QUEBEC

A province of contrasts · Suppose we begin our study of the Province of Quebec by visiting a few settled places in different parts of the Province. These imaginary visits will show you how differently people live in different parts of the Province.

First of all we will go to a village near the St. Lawrence River. The houses are close together on either side of a long, shady street which follows the river. In the centre of the village is a large church with a tall spire, and close beside it is a school. Around these are several cross streets and more houses, as well as a few shops and a post office. At one end of the village is a small cemetery where the gravestones tell of people who were buried there as long as three hundred years ago. Back from the village stretch long, flat, ribbon-like green fields. Each farm is narrow, about the width of a city block, but so long that the farmer has to go a mile or a mile and a half to reach his "back lot." The people who live in this village all speak French. Many are descended from families who settled there over three hundred years ago.

Our next visit will be to another small village, but this village is among the hills. The people here all speak English. The first settlers came in from New England over one hundred years ago, and today some of their descendants still live in and around the village. Instead of being long and narrow like the first, it is almost the shape of a cross, although a crooked one, because it grew up where two roads crossed. A large grassy square, on which face the school and a church, reminded the early settlers of New England. Another church is at the other end of the village, and there is a post office and the usual small general stores. This village, too, is surrounded by farms, but instead of being long and narrow, the farms are more nearly square, with fields of many shapes to

This long, narrow village, stretched along the St. Lawrence, is the scene of our first imaginary visit.

Royal Canadian Air Force Photograph

A diagram of the village in the hills. Study it as you read the description of the village.

fit the curves of the hillsides. This village, too, is old, but not nearly so old as the first.

The third village that we shall visit is on the north shore of the Gaspé coast. The few small houses are along the road, which here follows a *terrace*, or strip of level land, about 20 feet above the water. Behind, to the south, rise hills which shut off the sun from the village except during the middle of the day. At the west end of the village a small river has cut its way through the hills to join the St. Lawrence. The tide has made a long sandbar almost across the river's mouth. High on a cliff across the little river and facing out towards the mighty St. Lawrence is a tall lighthouse which serves as a guide to sailors. The people of this village are not farmers; the men fish during the summer and cut lumber on the hills farther inland during the winter. There is a post office in one of the houses and a telegraph office in another, but no railroad reaches the little village. The people even have to walk two miles to attend church.

We have now visited in imagination three different types of villages. If we wished to

The village on the north Gaspé coast is situated on three terraces, the lowest of which may be seen in the lower left corner. Most of the houses are built on the middle terrace. The level of the third terrace is indicated by the road in the centre background.

Photograph by Griffith Taylor

travel farther, we might go to a mining settlement in Northern Quebec. This would be very different from the villages that we have visited. Let us see what it might look like. We should find that some of the houses are little more than shacks. There is no church as yet, and no school. These will come later. The roads are not surfaced, and so they are deep with mud, heavy with dust, or buried in snow. No shade trees line the streets as in the older villages. One or two settlers have started tiny gardens in which a few vegetables grow. The whole place looks raw and dismal, but there is a hum of activity everywhere. In one place a bulldozer is clearing land, in another a large piece of mining machinery is being swung into place, and in still another men are sawing boards and nailing them to uprights as they put up a house. Can you picture the changes that will probably take place in the next ten years or so?

If we were to visit a certain pulpmill town in Northern Quebec, we should find this still different from the others. The mills, which must have abundant cheap power and clean water for washing the pulp, are built near falls on a great river. The town is on a wide "bench" 150 feet above the river. To make life pleasant for the workers, the company that owns the mill has built a school, a clubhouse with a swimming pool, and attractive homes. Besides the company's employees, there are storekeepers, fur traders to whom the trappers bring their skins in the spring, and workers on the railway, the transcontinental line of which runs through the town. As it is almost 80 miles to the nearest town of any size, the people who live here cannot often "go outside," as they say. Fresh vegetables, fruit, and milk are expensive, since they have to be carried a long distance by train. Some townspeople have small gardens, but because of the poor sandy soil and the short growing season, gardening is not very successful.

This Eskimo trapper (right) is selling some of his white fox skins to a fur trader.

How different is the life of the people in the five settlements about which we have read, and yet they are all in Quebec! Nor is this by any means all the variety we can find, for there are crowded cities like Montreal and Quebec where life is not in the least like that in any of these villages. Again, away to the north, we find roving bands of Indians who make a living by trapping, while south of Hudson Strait and Ungava Bay are Eskimos. They, too, live in Quebec.

THE PEOPLE OF QUEBEC

Now let us look for a minute at the people we have seen. In many small towns and villages, like the first we visited, everyone speaks French. In one village we saw there were only English-speaking people, but this is rare. In many other towns we could find both French-speaking and English-speaking Canadians living and working side by side. In the mining town we would be sure to find people of Polish, Italian, and Austrian origin, and in the pulpmill town numbers of Americans among the company officials and office staff, as well as people of Swedish and

From Paul Provencher, Quebec North Shore Paper Company

A native Canadian. This Indian trapper is on his way to civilization with his bundle of furs.

Norwegian origin among the workers. In large cities like Montreal there are people from almost every country on earth. In the far north are Indians and Eskimos—the first "Canadians."

So if someone were to ask you, "Who are the people of Quebec?" the answer would not be so easy as you might think. First of all, they are *Canadians:* whether they speak French or English, Italian or Russian. If they were born in Canada or if they have taken the oath to be loyal citizens of Canada, they are Canadians, as we are. In Quebec Province the French-speaking group is by far the largest—larger than all the other groups put together. Except for the Eastern Townships and the southwest corner of the Province around Huntingdon, Ormstown, and Howick, the French cleared the land and built the first settlements. Their descendants, as you know, now form about nine tenths of the whole population of the Province.

THE PHYSICAL REGIONS OF QUEBEC

The Laurentian Upland

A glacial region · As you already know, the Laurentian Upland covers nearly all of Quebec. As you learned on page 14, this region is one of worn-down stumps of mountains made up largely of hard rock. Thousands of years ago a great sheet of ice covered this part of Canada. *Glaciers*, or rivers of ice, extended in all directions from the ice field. As the glaciers moved slowly along, they ground off the worn-down stumps of mountains bit by bit and carried soil, sand, and rocks far to the south, even into the United States. The ice also scoured out deep valleys in which many of the rivers now flow, and dug out hollows that are now filled by lakes.

After a very long period of time, the weather grew warmer and the ice began to melt. The melting began along the southern edge of the ice sheet and continued farther and farther north until now the ice sheet and glaciers have disappeared entirely from the Province of Quebec. Greenland is still almost completely covered by such an ice sheet.

At first the hills had little soil on them, and in many places they still are bare, but in the hollows the glacier had left soil worn from the rocks over which it passed. In this soil, moss, plants, bushes, and finally trees began to grow; and when these died and decayed, more soil was formed, until today forests cover much of the region. Great dark forests of spruce, pine, and hemlock stretch mile after mile, and in many places none of the trees have been cut. The trees in these forests are conifers. You will remember that conifers have needles in place of leaves. There are a few leaf-bearing trees, such as alders, birches, and poplars, but there are no oaks, or elms, or many of the other trees which you may know. Of course you will wonder why

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The dark evergreen forests and the many lakes of the Laurentian Upland portion of Quebec make it a beautiful region. Why is it of great value to Canada?

conifers will grow where oaks and elms will not grow. This is something we must understand. Partly it is because the thin, sandy soil, although not deep enough for oaks or elms, will feed the hardier conifers, which can spread their roots out even over the rocks. Partly it is because of the climate. The summers are short and wet and the winters are long and cold. Such long, cold winters kill most broad-leafed trees. For all these reasons, then, this is the land of dark forests, the land of Christmas trees!

A region of valuable forests · Let us pretend that we are standing on the top of one of the many hills, or "mountains," as they are usually called, in Northern Quebec. In every direction we see hills, most of them of about the same height as the one on which we are standing. Some are quite bare on top, and others show many ledges of rock between the trees. Below us lies a deep valley in which there is a river of sparkling water. At one place in the river a wide bar of foaming water shows that there are rapids. Across the valley we can see a waterfall, where a tributary stream plunges over a rocky ledge. In imagination we can see the fur traders of long ago making a portage around the falls.

On a near-by hill is a steel tower with a little house near its base. That is a *fire tower*,

From steel towers such as this one, forest rangers help to protect Quebec's forests from fire.

Department of Lands and Forests

Service de Cine-Photographie, Province de Quebec

A farm in the Lake St. John District. Long ago the land here was the flat bottom of a lake.

which the *forest ranger* climbs to look for signs of forest fires. Every year these fires destroy great areas of forest and cause millions of dollars of loss to Canada. We can count five lakes from where we stand. But in all this wilderness of forest and lakes and mountains we can see only one farm, if such it can be called. On it is a poor wooden house, a tiny stable, a little plot of cleared land protected by a rail fence! "This seems to be no country for farming," you will say to yourself, and you are quite right. Look again at the map of Canada on pages 12–13 and trace out the whole region of the Laurentian Upland. By far the larger part of this great region is not suited to farming. There are a few areas like the *Clay Belt* south of James Bay, and the district around Lake St. John, that have soil which is good for farming. French-speaking people have farmed the Lake St. John District for many years, and raise crops of potatoes, oats, hay, and hardy vegetables.

Pulp logs being hauled out of a river after their trip downstream to a pulp and paper mill.

The E. B. Eddy Company, Limited

The Laurentian Upland may not be useful for farming, but it is of great value for its forests. Some of the wood is used for lumber, but the chief use of softwood, particularly spruce, is for pulp.

The pulp and paper industry · The pulp logs are cut and floated down the rivers to mills, where they are ground and made into pulp. There are many pulp and paper mills in Northern Quebec, particularly along the south-flowing tributaries of the St. Lawrence:

the Ottawa, the St. Maurice, and the Saguenay. Find the towns of *Hull* on the Ottawa; *La Tuque, Grand'Mère, Shawinigan Falls*, and *Trois Rivières* on the St. Maurice; and *Jonquière* and *Chicoutimi* on the Saguenay. All these have pulp mills or pulp and paper mills.

Canada exports more newsprint, or paper on which newspapers are printed, than any other country in the world, and Quebec makes more of this newsprint than any of the other provinces. It would be interesting to visit a paper mill and see how the work is carried on. This is what a paper mill worker has to say about his work.

"My name is Lars Larsen, and I work in the shipping room at our mill checking off the big rolls of newsprint as they are loaded into the box cars at our siding. Often I wish I might follow some of those rolls of paper; they would lead me to many corners of the world. Sometimes, too, I go out behind the mill and watch the endless procession of spruce and balsam logs entering the mill, and I think of the great forests away up the St. Maurice River where the trees grow, and of the exciting trip they had down the river to the mill. But that is not the story you asked me to tell you. You want to know what happens from the time the logs enter the mill until they leave it as rolls of newsprint.

"First of all, the logs go to a 'barking drum,' which tumbles them about and so scrapes the bark off. Water is sprayed over the logs, and this washes the bark out between slats in the drum. The logs then pass along a conveyor belt, where inspectors discard any that still have bark. The next machine, the 'borer,' gouges out the knots and any decayed spots in the wood. Now the clean, smooth logs go to the 'chipper,' which slices them up into small, thin chips. These, then, are screened to remove any large pieces, and carried by a conveyor to the storage bins.

National Film Board Photograph

Chips being carried by a conveyor belt to the digester building to be made into sulphite pulp.

Photograph by Malak, Ottawa

A milky river of liquid pulp.

"Beating" the pulp in a huge vat.

National Film Board Photograph

All logs, no matter of what type or for what purpose, go through these first processes, but from this stage we have two different methods of making pulp, out of which paper will be made later. One is called the *mechanical* process and the other the *sulphite* process.

"In the mechanical process the chips are passed through 'grinders,' where turning grindstones reduce them to pulp. Streams of water passing through the grinder wash the pulp out and reduce it to a soupy substance. This 'soup' passes over screens to remove any coarse material and then goes to the storage tanks. This type of pulp is not strong enough to be used alone for newsprint.

"In the sulphite process the chips go to huge 'digesters,' sometimes 58 feet high, where they are cooked in a chemical liquid for 8 to 16 hours. The liquid pulp is then blown out by steam pressure into a 'blow pit,' where it is washed and strained.

"Now comes the business of making paper out of the liquid pulp. From machine to machine the pulp passes, being washed and screened and washed again until nothing remains but the pure fibres of woody substance, or *cellulose*, as it is called. Although the pulpy mixture is now clean, it is not yet white, and so the next step is bleaching, which is done by another chemical. The tiny bleached fibres are then frayed at the ends in another machine so that they will cling together more easily.

"This pulp, or *stock*, as it is now called, is ready for the paper machine. This machine consists of hundreds of rollers and is so long that it stretches the whole length of the mill. When the stock goes in at the 'wet end' of the machine, it has to be held up on wide belts, first of fine wire mesh, and later of wool felt. Through these the water drains away as it is squeezed out by the rollers. Farther along in the machine the rollers are heated to finish the drying. What finally comes out at the 'dry end' of the paper machine is no longer sticky pulp, but paper.

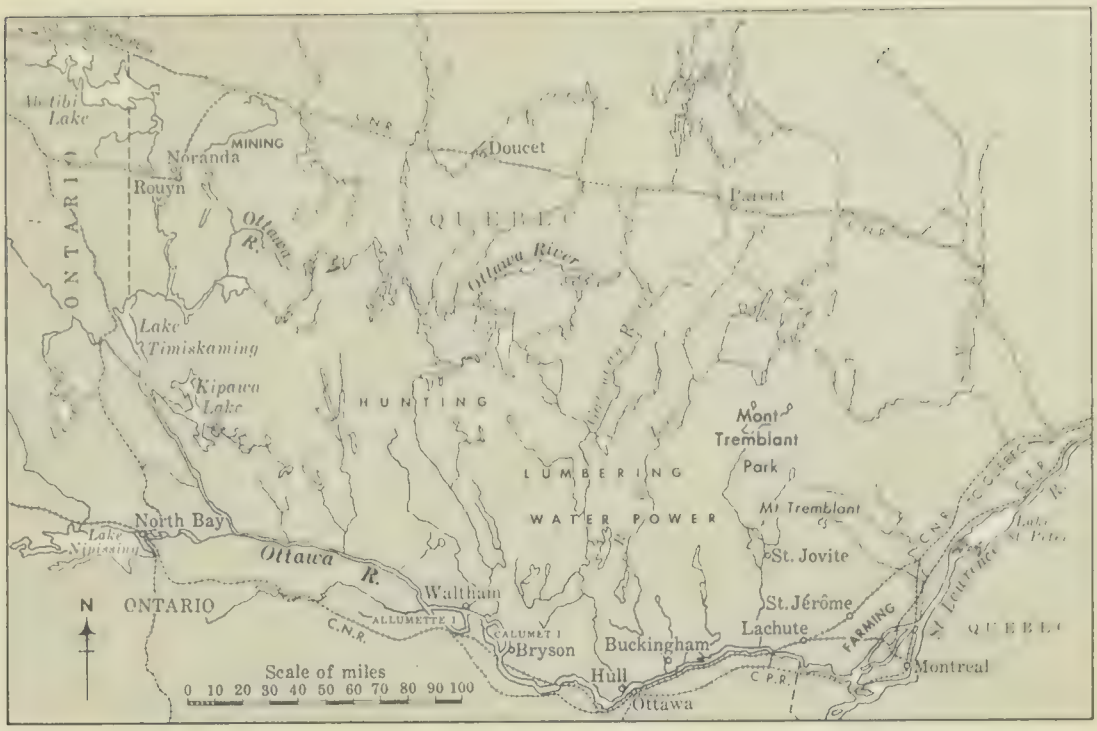
"Even yet the process is not completed, for the paper has to be smoothed, or 'ironed,' and rewound on long cores. At last it is ready to be wrapped for shipment.

"It always surprises visitors at the mill to see how fast the paper machine works. It is nothing to turn out a mile of paper in three or four minutes. And speaking of visitors, a question they nearly always ask is, 'What is the cause of the strong, disagreeable smell around the mill?' This smell arises during the preparation of the liquid used in the sulphite process. Limestone and sulphur are combined, and it is the sulphur that gives off the strong smell. This sulphur, which you could see in gleaming, yellow piles in the mill yards, comes all the way from the southern United States, near the Gulf of Mexico.

"The next time you boys and girls see your dad reading his morning paper, you may remember the numbers of men and machines that were needed to manufacture the newsprint."

In addition to newsprint, many other kinds of paper are made from the pulp. These include writing paper and wrapping paper. Still other types of paper are made for manufacturing paper plates and cups, paper bags, and so on. Rayon that is used for dresses, underwear, and stockings is also made from wood pulp. At Hull there is a great match factory, and at Shawinigan Falls a factory in which cellophane, plastics and many other articles, both useful and beautiful, are made from wood pulp.

The Ottawa Valley · Notice the number of lakes and small streams on the map of the Ottawa Valley. This means that this country is excellent for sportsmen. Find *Rouyn* and *Noranda* in the northwest corner of the map near the boundary of Ontario. Those places



The Ottawa Valley, noted as a vacation land and for its mines, forests, and power developments.

are the centre of an important mining region. If you were to visit the region, you would see mine after mine extending for miles. In all of them gold is mined, and in some of them copper is also mined. Notice the lakes near Noranda, one on either side of the railway line: one drains north to James Bay, and the other south into the Ottawa River.

A region of clay soil around Lake Temiskaming makes farming possible there. Much lumber is cut in the rougher parts of this district to supply the pulp mills at Kipawa.

Both the Gatineau and Lièvre rivers have important power developments, and lumbering is carried on throughout this district.

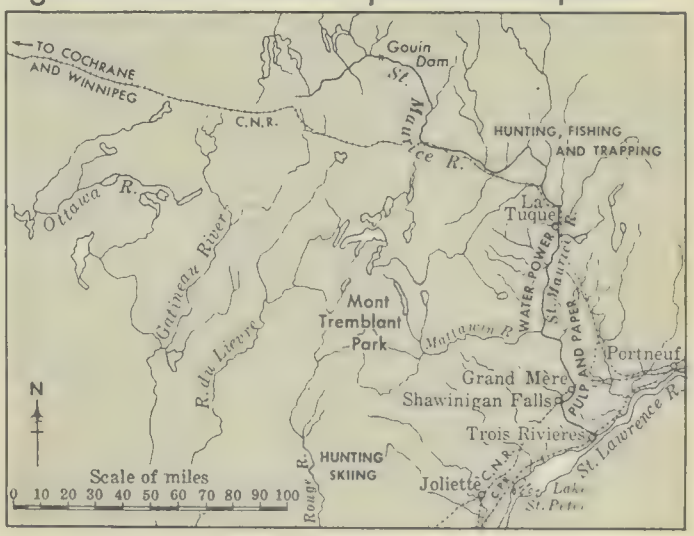
Mont Tremblant and St. Jovite are the centre of the famous Laurentian skiing country. Ski trails have been laid out through the woods and down the slopes of mountains.

The St. Maurice Valley · This valley lies east of the country shown in the map above. It is like it in many ways, with rivers and lakes that make good playgrounds for sportsmen. Many of the lakes fill rock basins scoured out by the great ice cap which covered this part of North America. For this reason the water is clear and pure. In such lakes trout, the finest of all game fish, are found. The clear water of the rivers is just what is needed for washing pulp in the many pulp and paper mills.

The St. Maurice River has power developments at several places along its course, the first being some distance north of La Tuque. Near the source of this river you will notice the Gouin Dam. This is a very large dam, one of the largest of its kind. However, it has a use which is rather different from that of the other dams on the river.

Turn over to page 62.

The St. Maurice Valley is also noted as a playground and has several power developments.

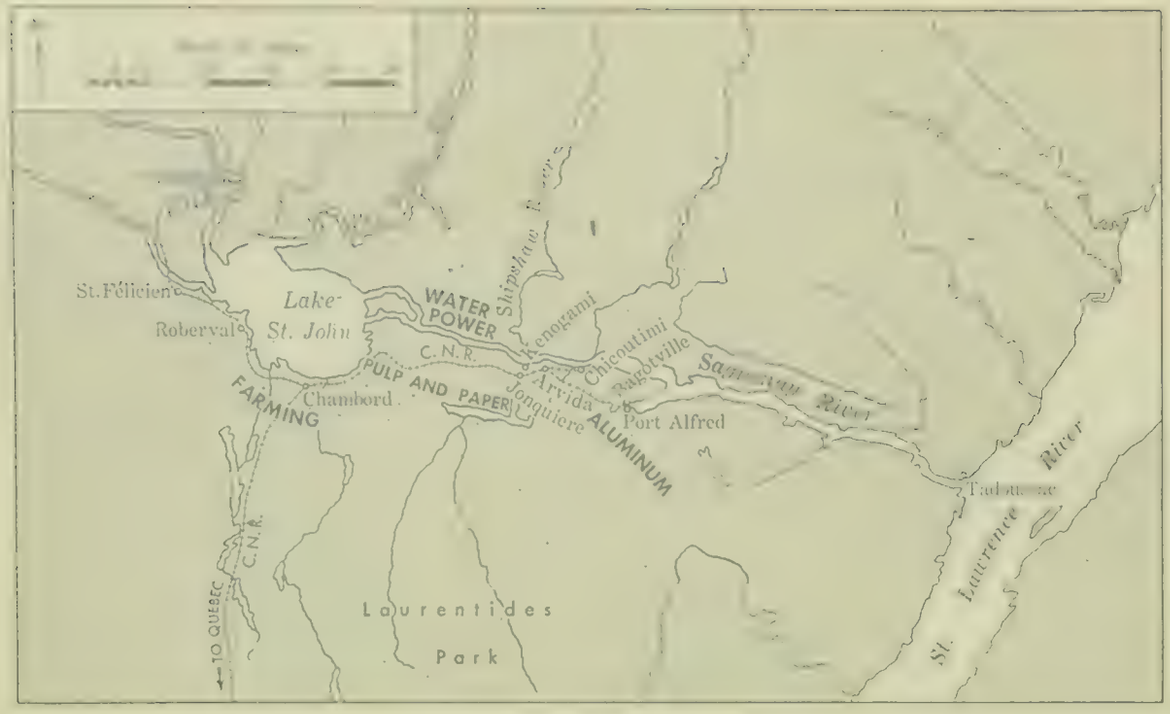


MAP STUDY · Complete these statements with the help of the map.

1. The southern boundary of Quebec follows closely the __?__ parallel of north latitude. **2.** Only the Provinces of __?__ and __?__ extend farther south than does Quebec. (Consult the map of Canada on pages 12–13.) **3.** __?__ Bay and __?__ Bay lie to the west of the northern part of Quebec. **4.** __?__ Strait separates Quebec from Baffin Island. **5.** To the east of Northern Quebec is __?__, which belongs to Newfoundland. **6.** Between Newfoundland and the mainland is the Strait of __?__. Through this strait steamers pass on their way to Europe. **7.** __?__ River cuts the Province of Quebec into two parts. The part lying north of the river is much larger than the part south of it. **8.** The peninsula between the St. Lawrence and the Baie de Chaleur is the __?__ Peninsula. **9.** On the west Quebec borders the Province of __?__ and on the east the Province of __?__.

THINGS TO DO · 1. Find the three chief northern tributaries of the St. Lawrence: the Ottawa, the St. Maurice, and the Saguenay. Notice that the Ottawa forms part of the western boundary of Quebec.

2. Notice how many lakes and rivers there are in Northern Quebec. Some of these rivers flow south into the St. Lawrence, some west, and some north. Since rivers always run downhill, this must mean that there is a *height of land* running from southwest to northeast between the sources of these rivers. Just as the gable, or highest part of a roof, divides the rain water which runs down one slope from the rain water which runs down the other slope of the roof, so this height of land divides the rivers flowing south from those flowing west and north. Now you see why this height of land is called a *divide*, or watershed. Trace the divide on the map of Quebec.



The well-wooded Saguenay Valley is famous for its water-power developments. Therefore many of the towns shown on the map have pulp and paper mills.

Its purpose is to hold back the water that would otherwise run to waste during the spring or a period of heavy rain. As the volume of the river shrinks during dry weather, the sluice gates are opened, the stored-up water runs out, and the power plants down the river can continue to produce electricity.

The Saguenay Valley · Unlike the other tributaries of the St. Lawrence, the Saguenay River is navigable for large boats. The ice from the great glacier scoured out its channel so deeply that ocean-going steamers can ascend it as far as Chicoutimi and Port Alfred. Beyond this, and on the northern tributaries of the Saguenay, falls and rapids make possible enormous water-power developments. These supply electricity to the aluminum plant at Arvida and to the many pulp and paper mills which are near by.

Around Lake St. John the land is low and flat. This is well-cultivated farm land surrounded by a wilderness of forests, lakes, and hills. It was at one time a lake bottom, and for that reason has good soil.

The mills at Grand'Mère are run by hydro-electricity. Notice the power lines in the picture.

Courtesy of Canadian National Railways

Power for the mills and factories · The many mills and factories about which you have read need a tremendous amount of power to turn their machinery, and although Quebec lacks coal, it has an abundance of water power. All over the province are falls and rapids like those we saw from the top of the hill in the Laurentians. The water is led from above these falls through a large pipe, so that it strikes against the blades of a turbine, making them spin around very fast, much as the blades of an electric fan spin when the fan is in motion. The turbine turns an electric generator which produces a current of electricity which may then be carried long distances over wires to light our houses or to turn the wheels of our factories. Power so produced is called hydro-electric power, and Quebec produces more hydro-electric power than any of the other provinces.

Because there is much hydro-electric power in Quebec, electricity is cheap; and factories are built where power is cheap, and where easy transportation by water or rail makes it possible to bring in raw materials and ship out the manufactured products. For this reason Shawinigan Falls has developed many industries, and Grand'Mère and Trois Rivières have large cotton mills. There is another reason for the growth of Trois Rivières; it is that ocean boats coming up the St. Lawrence can tie up at its wharves.

At Arvida, on the Saguenay River, the cheap power has led manufacturers to build a great aluminum factory, although the raw material from which aluminum is made has to be brought all the way from South America. Your mother's shiny saucepans are made of aluminum. Try to find other uses for the metal.

THINGS TO DO · **1.** Plan and make a poster warning of the dangers of forest fire. How do forest fires start?

Courtesy of Canadian National Railways

A Quebec trapper taking the "catch" from a trap. Why does he set his traps in the winter?

2. In countries like Sweden, Germany, and Japan, all forests are cared for by the state. Only picked trees may be cut, and others must be planted to take their places. The forests are also kept clear of *slash*, or the waste branches and leaves. Canada is learning to follow this plan. Make a list of the reasons why you think that *forest conservation*, as this care of the forests is called, is important. Add to your list the fact that when forests are cut down many of the streams dry up. This is because the trees shade the ground and help by means of their roots to hold in place the soil which contains the moisture.

3. Give as many reasons as you can why farming is not successful in most of Northern Quebec.

4. Explain what is meant by hydro-electric power. Of what value is it to the Province of Quebec?

The fur industry · You all know that when the French first settled in Canada they began trading in furs with the Indians. There is still much trading in furs, but we do not hear so much about it now as we used to. Year by year most of the fur-bearing animals are becoming fewer; but Indians, and white men too, still roam the northern forests, setting their traps and visiting their trap lines. It is a lonely life, since the trapper,

Courtesy of Canadian National Railways

Fishing on a lake in the Laurentians.

to find the wild animals, must leave home and civilization. In the spring he comes in to one of the trading posts (the Hudson's Bay Company still operates many through the north country) and sells his furs, buying supplies to last him for the next year. Travelling by canoe in summer, and by dog team in winter, is still the most common means of getting about, although loads of furs are sometimes brought out from the trading posts by aeroplane.

A tourist region · In recent years the more southerly wooded parts of the Laurentian Highlands have become popular with tourists. Campers in summer, hunters in the autumn, skiers in the winter, and fishermen in the late spring and summer are using and enjoying this part of Quebec. The many lakes and rivers make it possible to travel by canoe in almost any direction. When the travellers come to rapids or to a divide between streams, they have to carry the canoe and its load across the *portage*, or "carrying-place."

SOMETHING TO DO · 1. With your map plan a canoe trip from Trois Rivières to James Bay. Choose the shortest route you can find and try to avoid a long portage. Portaging is hard work.

Write a description of what you see on the way. Use your map carefully, and notice when you are among the high hills and when you come out on to the low plain south of James Bay. Don't forget to mention the mosquitoes and black flies if you plan to go in the summer. There are millions of them!

The mining town of Noranda has had a rapid growth. In the background may be seen its great smelter, where the gold and copper ores are removed from the waste rock.

Courtesy of Canadian National Railways

2. Ask your teacher to help you to find out all you can about beavers. Perhaps you have read one of the books that Grey Owl wrote about his beavers. In the old days there were many beavers in the Province of Quebec. Now few remain. Why and how should we protect those that are left?

The hidden wealth of the Laurentian Upland · In the hard rocks of this region is a great wealth of minerals. Rain, wind, frost, and ice have worn down the mountains, bringing some of the minerals near enough to the surface so that men can reach them by mining. Much of this area is still unexplored, and huge amounts of wealth may still be lying hidden, just as it has been for long ages, waiting for men to come and find it.

As you have learned, important mines now being worked are in the Noranda-Rouyn district, near the Ontario border. Here gold and copper are being mined by many different companies. Zinc is also found in great quantities, but at present the more precious gold and copper are getting most of the attention. A smelter has been built at Noranda to remove the ores from the rock in which they are found. The copper is then sent to the refinery in Montreal to be purified. It is like a fairy story, the way this district has developed. A few years ago it was quite unsettled; today thousands of people are living in towns that are growing larger every day.

Another region that has been opened up rapidly is Chibougamau, between Lake St. John and James Bay. At first the miners and all their machinery had to be carried in by aeroplanes. Gold and copper are found there too.

A region where miners are now very busy lies in Northern Quebec near the border of Labrador. Aircraft are flying in geologists, who examine the rocks, and surveyors, who mark out the limits of the mining properties. Not gold, but iron, will be mined here, and Quebec needs iron for manufacturing steel. In time a railway beginning on the north shore of the St. Lawrence will reach 300 miles northwards to the mining camp, and supplies, machinery, and men can be moved in. After some years iron ore will begin to move southwards to be shipped to steel mills in Canada and the United States.

Along the southern border of the Laurentian Highlands, not far from Ottawa, mica and graphite are mined. Find out what these minerals are used for.

THINGS TO DO · **1.** Now you should be able to answer the question "Why do so few people live in such a large area as Northern Quebec?"

2. Quite often this sentence appears in the paper: "Canada wants men." What kind of workers could be used in Northern Quebec? What kind of workers would be of little use there?

3. Below is a list of the towns of Northern Quebec. How many of the industries in the second list are carried on in each? Which town is a port?

Towns

Arvida	Grand'Mère	La Tuque	Shawinigan Falls
Hull	Chicoutimi	Noranda	Trois Rivières

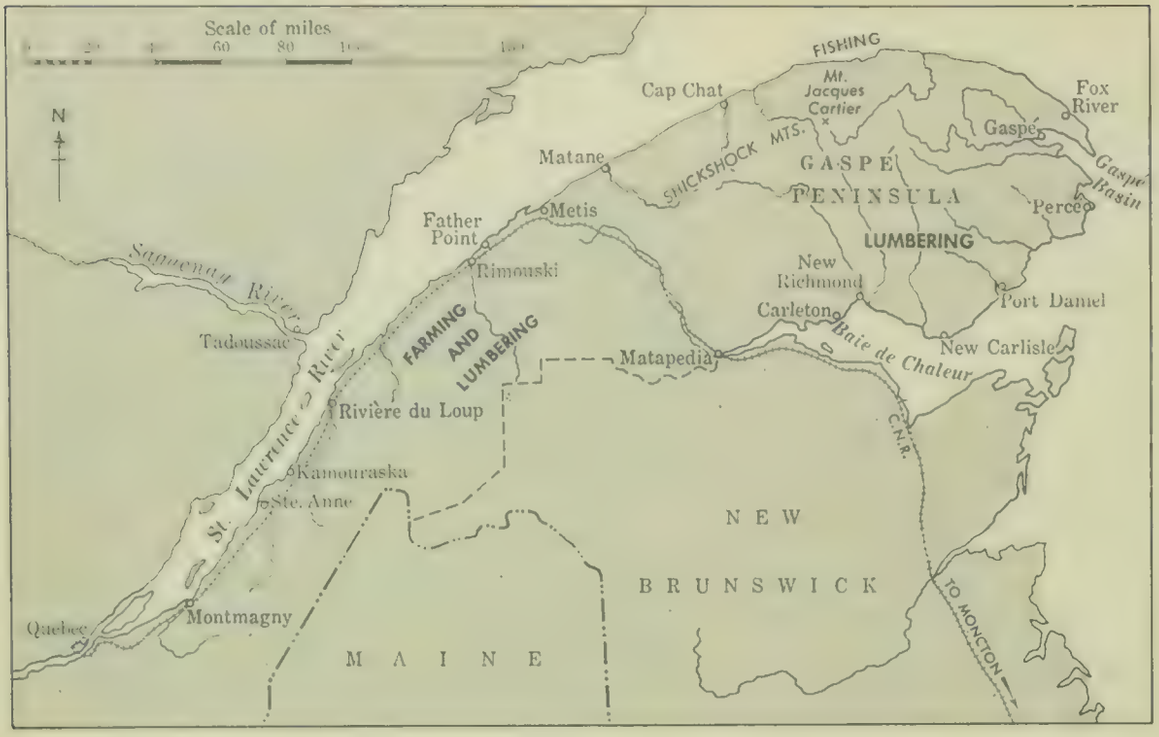
Industries

Power development	Mining
Manufacture of aluminum	Pulp and paper making
Match making	Manufacture of cotton
Making of cellophane	

When you have finished, check your answers with your book.

The Appalachian Region

A region of low mountains · From Northern Quebec we shall now go to the hilly country south of the St. Lawrence. This Appalachian Region extends from the boundary of the United States, in latitude 45° north, to the tip of the Gaspé Peninsula. The mountains rise like great parallel folds, some to a height



The Gaspé Peninsula. The name Gaspé comes from an Indian word meaning "the end of the land." Do you think the peninsula was well named?

of 4000 feet, but many much lower. The tops have been worn off by rain, wind, and frost, and also by ice, for the great glacier covered much of this region as well as Northern Quebec. The mountains are smoother and more rounded than the Laurentians, and are usually forest-covered to the top. Between the mountain ridges are fertile valleys and many lakes, making beautiful scenery.

The climate in this part of the Province is not so severe as that in Northern Quebec; the winters are not so cold and the summers, except in the Gaspé Peninsula, are longer. But here, too, there is much snow, and the spring is late.

The soil in many of the valleys is good, but on the hillsides it is poor and thin. It is not at all unusual to see stone fences bordering the fields or hillside pastures. The stones used in making them were left by the melting ice sheet.

It was on the Gaspé that Cartier made the first French claim to land in the New World.

The Gaspé Peninsula · Let us see what the map above shows us. This map covers the most easterly part of the Province of Quebec south of the St. Lawrence. Notice how you can tell by the rivers that the highest part of the peninsula lies near the northern shore. Mount Jacques Cartier, 4450 feet high, is the highest point in southern Canada east of the Rockies. It was on the opposite side of the peninsula, at the head of the Gaspé Basin, that Cartier landed in 1534 and set up a huge cross on the shore, claiming the land for the King of France.

The Gaspé Peninsula, which stretches out into the Gulf of St. Lawrence, is in many ways like the Maritime Provinces, which means that fishing is the chief work of the people. Along the north shore the fishermen live in tiny villages facing the river, with the high cliffs rising behind them. No railway reaches them, but a motor road now runs all around the peninsula, bringing many tourists in the summertime to enjoy the scenery.

Courtesy of Canadian National Railways

The village of Gaspé, at the head of Gaspé Basin. Locate it on the map on the opposite page.

Many of the south-flowing rivers and the small lakes that they drain are leased by fishing clubs or sportsmen who want to preserve the splendid salmon and trout fishing. These sportsmen give work to men who act as guides or as caretakers of the camps and lodges.

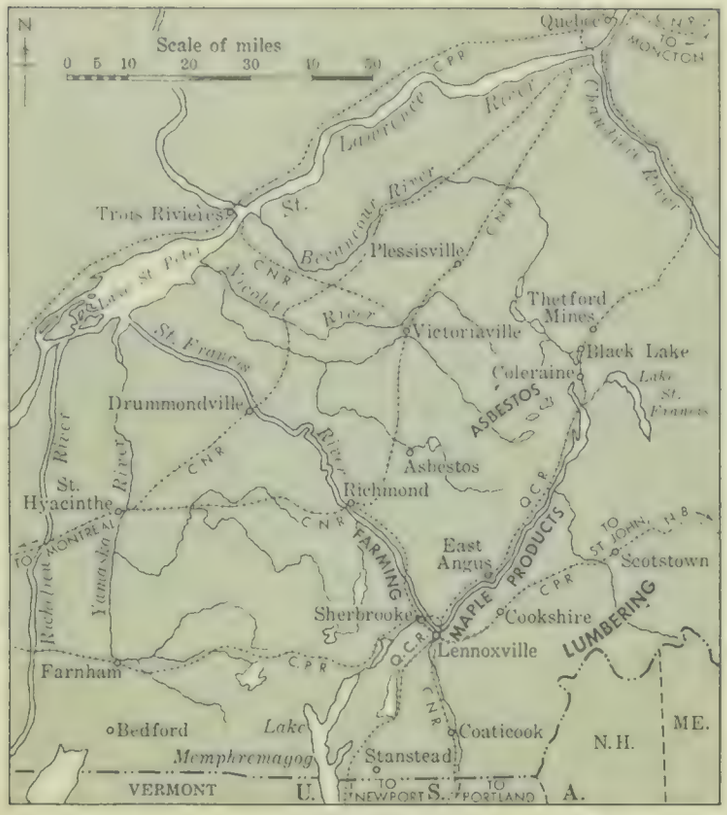
Gaspé Basin forms a fine large harbour, but there are not enough industries here to allow an important port to grow on the harbour.

Along the north shore of the peninsula are summer resorts. At Father Point, near Rimouski, all ships going up the river must take on a river pilot.

Along the south shore of the Peninsula, north of the Baie de Chaleur, life is not so hard. A railway serves the people who live there. You remember that lumbering is an important industry in New Brunswick; it is therefore to be expected that lumbering gives work to many of the people in Gaspé. Indeed, many of the men of Gaspé fish in the summer, and work in lumber camps in the winter. Farming is carried on to some extent, but farms are small and hilly, the soil is thin, and the growing season is short. Part of the farm work is done by the women and children while the men are away fishing. In recent years it has been found that very fine green peas can be grown in some of the sheltered valleys in this region. The peas are either shipped away fresh, or canned. Strawberries and blueberries, too, grow well here, and because the season is late in Gaspé they are marketed in Montreal after all other such berries are gone.

Between the Gaspé Peninsula and Levis, opposite the city of Quebec, along what is called the "South Shore," is a lumbering and farming country. Here, too, the land is hilly and the farms are small; so in order to make a living the farmers must work in the woods during the winter. Along the St. Lawrence, which is here very wide, sea-side resorts are found. It may sound strange to hear of sea-side resorts so far inland, but the water of the St. Lawrence is salt almost as far up the river as the city of Quebec.

The Chaudière Valley · Look at the Chaudière River Valley on the map on page 68. Few people live in this part of the Province, but the Chaudière River route, which links with that of the Kennebec in Maine, was one of those travelled by the Indians before the white man came. By this route Frontenac



A map showing the area that is included in the Eastern Townships.

sent a raiding party of French and Indians against the New England settlements in 1690. During the American Revolution it was by this route that Arnold led his forces against Quebec. After dreadful hardships they reached the St. Lawrence.

About half a mile from where it joins the St. Lawrence, the Chaudière tumbles in falls from the high, level plateau on to the St. Lawrence Plain.

An Eastern Townships farm. What things in the picture tell you that this is a dairy farm?

Service de Cine-Photographie, Province de Quebec

The Eastern Townships · The most fertile part of the Appalachian Region of Quebec and the part that has the most people is the Eastern Townships. As you know, the greater part of the Province of Quebec was settled by the French, and until after the English came in, all the land was divided up by the French into *seigneuries*. These seigneuries were then divided into long strips fronting on a river. In this way the land along the St. Lawrence, the Richelieu, and the Chaudière was divided. Find these rivers on the map on this page. After the American Revolution, the block of land between these rivers and the southern boundary was divided up into townships and settled by people from the United States and from England, Scotland, and Ireland. These are known as the Eastern Townships. The first business of these settlers was farming, and in the fertile valleys they were able to raise good crops. Oats and barley, potatoes, vegetables, and hay grew readily. Because fodder crops could be raised, dairying soon became important, and cheese factories and butter factories were built. One of the first railways in Canada, the one joining Montreal with Portland in Maine, the nearest winter port, passed through the Townships. This made it possible to ship milk, cream, and eggs to the many cities of the Eastern States. The lower hillsides were used for pastures, and more sheep are found here than in most parts of the Province.

Since the hillsides were covered with forests, lumbering was, and still is, important. Sawmills, shingle mills, and, later, pulp mills were built near the streams. On the St. Francis, another tributary of the St. Lawrence, and the largest river in the Townships, were falls and rapids. Most of the smaller rivers, too, had falls. This led to the development of water power and the beginning of manufacturing.

Study the map of the Eastern Townships. Notice how the St. Francis River rises in Lake St. Francis on the eastern border of the map. It then flows southwest between two ridges of hills until it reaches Lennoxville three miles south of Sherbrooke. There it turns northwest and cuts through a third ridge of hills. At Drummondville it leaves the highland, flows down on to the St. Lawrence Lowland, and empties into Lake St. Peter.

As you can see by the railway pattern, Sherbrooke, on the St. Francis River, is the important centre of this region. The many small river valleys which meet there allow all the main railway lines joining Montreal and Quebec with the eastern Atlantic ports to pass through the city. Sherbrooke is the largest city of the Eastern Townships.

Manufacturing. Because the United States is near, the railways can easily bring in raw materials from that country for manufacturing. These materials include iron and steel to be made into machinery, and cotton to be made into cloth, sheets, and thread. Silk, and rayon, from wood pulp, are made into stockings. Wool, from sheep raised in the Eastern Townships and in faraway Australia, is made into woollen cloth and blankets. Raw rubber is made into rubber heels and footwear.

Many of the smaller towns have industries like those of Sherbrooke. The pulp and paper industry and the *textile industry*, or the making of cotton, silk, rayon, and woollen goods, are the most important. Although the Townships were settled by the English, the population is now largely French. Most of the workers in these textile mills are French, and they are very good workers, too.

Asbestos mining. There are not many minerals in the Eastern Townships, but among its hills is found a certain kind of hard rock through which run bands of *asbestos*. The French sometimes call this queer mineral *pierre à coton*, or "stone of cotton." It is a good name, because the rock peels off into fibres much like cotton. Asbestos will not burn, and so it has many uses. It is wrapped around furnaces to keep the heat in; it is made into coats and gloves for firemen, to keep the heat out; and into shingles to keep heat out in summer and in during winter. Canada produces more asbestos than any other country in the world, and all of it comes from the Eastern Townships.

National Film Board Photograph

Notice the fineness of the fibres of this piece of asbestos as it comes from the ground.

On your map locate the places where asbestos is found. The rock is dug out of the earth, leaving large open pits. The crushed rock from which the asbestos has been taken is heaped up in great mounds like long hills. Fine white dust, almost like flour, blows about through the air and settles on trees, grass, and houses, so that it sometimes looks as if it had been snowing. The most important asbestos towns are Asbestos and Thetford.

A worker in an asbestos mine at Thetford is glad to tell us the story of the mining of asbestos and its preparation for manufacture.

"I work in the big crushing plant at the mines, but since my father and brother work in other parts of the mine, I know what goes on from the time blasting begins until the bags of asbestos fibre leave by train.

Canadian Pacific Railway Company

The asbestos mine at Thetford, where Jean Paul works.

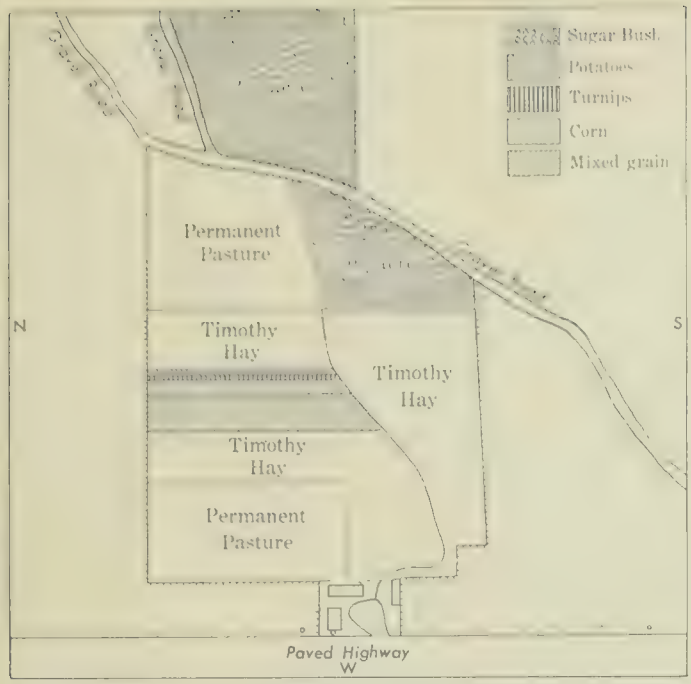
"First I must tell you about the pit of our mine. It is 450 feet deep, and 450 feet down into the earth is a long way. A friend of mine went to see the great Niagara Falls that we hear so much about, and when he came back he said, 'Jean Paul, you should see those falls, 150 feet they are from top to bottom!' I just laughed at him. 'Ho, Henri, that is nothing at all. You could stand three Niagara Falls one on top of the other in our mine pit.'

"Well, to get back to my story. The men who start the work are the drillers; they go down into the pit, and with their noisy drills they bore holes. When they have holes enough for one blast they pack them with dynamite and lay the fuse to set off the explosive. Then the foreman shouts a warning and all the men hurry away to safety. The fuse is set off by an electric current, and soon there is a great bang as the dynamite explodes, hurling pieces of rock into the air. When the dust has cleared away, a little locomotive brings up a train of small cars, and a steam shovel loads the broken rock into the cars. Then the train starts off for a tunnel, through which the cars are pulled up to the surface, high above the pit. At last they come to the crusher building where I work.

"Here the cars are tipped over by machinery so that the rock goes crashing down a 'hopper,' or chute, onto a 'feeder,' which pours it into the great crusher, where it is ground into small pieces. From the crusher the pieces are carried on a moving belt, or 'conveyor,' past workers who pick out the useless rock. The good pieces are carried on to a second crusher, where the rock is ground to smaller pieces. These are taken by a second conveyor to great revolving heated pipes or drums to be dried.

"The next trip the crushed rock takes is to the huge storage bin, and from there through a tunnel to the big brick mill. There the rock is again crushed and sent over moving 'screens,' where the fibre is sucked up by great electric fans while the sand and grit are left behind to fall through the screen. The asbestos is then graded and bagged ready for shipment.

"The rock that was taken from the deep pit has now been separated into soft greyish-white asbestos fibre and a sandy waste sub-



A diagram of an Eastern Townships farm. About what part of it is occupied by the sugar bush?

stance. The 'screenings,' as the waste material is called, are carried away to add to the mountain-like heaps that are seen around the mine."

Maple syrup and sugar. Another leading industry of this region is the making of maple syrup. The Province of Quebec leads in the amount of syrup produced, and most of it comes from the Townships. Eastern Townships syrup is usually considered the finest to be found. How the children of this part of the country enjoy a sugar party, or a "sugaring-off," as it is called! Sometimes a generous farmer invites them to his sugar cabin in the woods, where they can eat sugar taffy on snow.

This is the story of the maple-sugar industry as told by a farmer from Beauce County.

"My name is Jules Tessier, and I own a large farm in Beauce County, not far from the Chaudière River. In the spring my chief business is making maple syrup and sugar. I have a large sugar bush, and often tap two thousand trees.

"Before the sap begins to run there is much work to be done. In winter I cut and saw enough wood to fill the big woodshed at the back of my sugar cabin. I choose good hard wood, maple or birch, that will give plenty of heat for the boiling. Then, as the snow begins to melt, I must get out and wash all my sap buckets and their covers, and make sure that my metal spouts are in good condition. Inside the cabin the big evaporating pans must be washed and placed in position, and the fire box must be cleared of ashes and made ready for use. Then the sap tank has to be examined for leaks and thoroughly washed, and the collecting tank made ready to put on the sled. Some up-to-date sugar

Emptying buckets of sap into the sap tank. The horse will drag the full tank to the sugar cabin.

Service de Cine-Photographie, Province de Quebec

Here the sap is boiled in the evaporator until it has become just the right thickness for syrup.

From Ewing Galloway

bushes now have long pipes that run here and there through the bush. The sap is poured directly from the sap buckets into these pipes and runs downhill into the tank at the back of the cabin. Some day I, too, shall have these pipes.

"At last the spring thaw begins and I say to my good wife, 'Fernande, the spring is coming. I can feel it in the air.' At last the day comes when I can hitch my old Ponee to the sled, take my snowshoes and my tools, and start for the bush. At the cabin I pick up a load of stacked sap buckets and the spouts. Back and forth through the bush I go. On the south side of each good sugar maple I bore a hole, and into it I hammer a spout, and from the hook on the spout I hang a bucket and fasten the cover in place. How I love travelling back and forth through the snow in the woods in spring!

"When the trees are all tapped I listen carefully that night to the weather report on the radio: 'Cold tonight, but fine and warmer tomorrow.' 'Aha, Fernande, a fine day for the sap tomorrow.'

"The next day I take my two big boys and the hired man to the woods with me. One lays a big fire under the evaporating pan, and the rest of us take our sap yokes and gathering buckets and go off to the bush. The sap yoke on our shoulders is heavy, but with it we can each carry two pails and still have our hands free to empty the sap buckets into our pails as we pass from tree to tree. By noon there is enough sap in the storage tank at the cabin to make 'a boiling,' and so we light the fire and open the valve in the tank to let the sap run into the evaporator.

"Soon the cabin becomes warm, and clouds of steam rise from the evaporator and pass out through the opening in the roof. From time to time we place another log on the crackling fire. In the evaporator the sap is boiling, giving off the delicious smell that is as much a part of Canada as the maple tree itself. As the sap passes from the back of the evaporator through one compartment after another, it boils faster and faster as it nears the hottest part of the pan. It must be tested over and over with a special instrument until it is at the exact thickness required by law. Then it is drawn off into the syrup tins ready for sale.

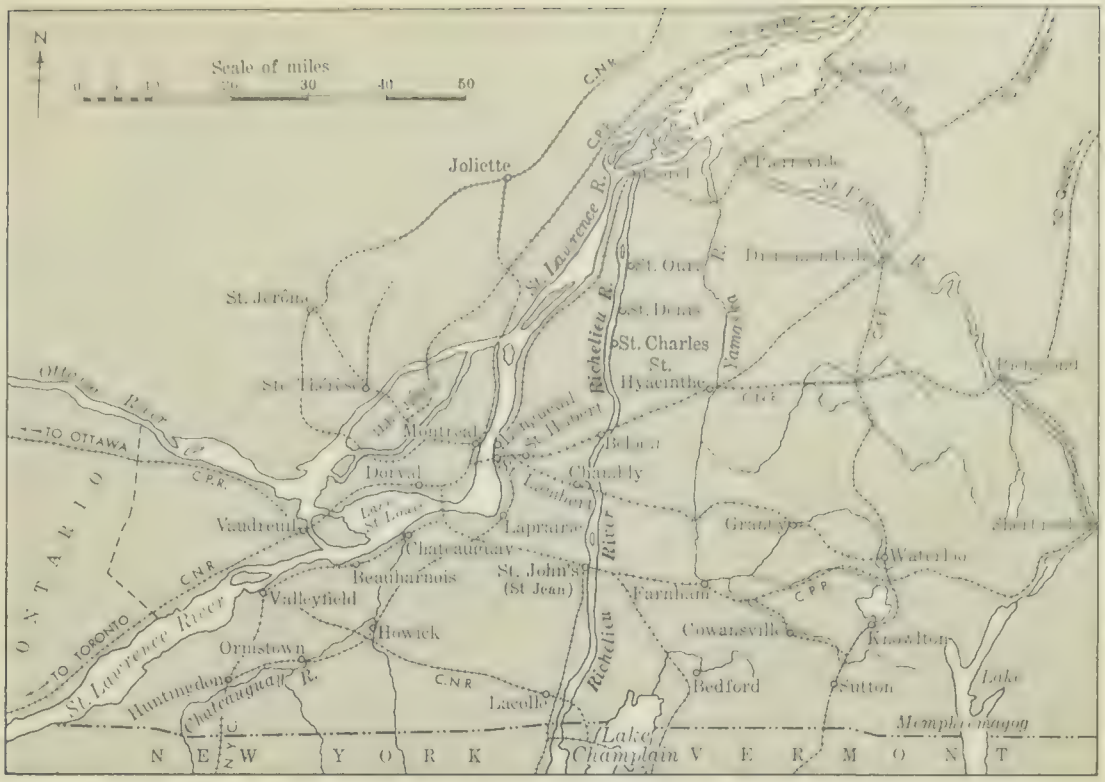
"This first 'run of sap,' makes the best syrup, and so it is usually sold in this liquid form. Later on in the season the syrup is boiled down further in a big pan until it thickens enough to harden into sugar. At the proper time it is poured into tin moulds to form cakes. From Beauce County much of our syrup is shipped away in big drums to the United States. Much of our sugar is used in the tobacco industry.

"Sometimes we have a 'sugaring off.' That is great fun. Monsieur le Curé comes and our friends and neighbours, as well as the children from the school. We put snow into pans and sap buckets, and then, as the company sits around on logs, we pass around, pouring out the hot syrup with a big ladle. We call this syrup on snow 'la tire,' and how good it tastes!"

THINGS TO DO · **1.** Perhaps you would like to set up a model of an Eastern Townships sugar bush. You will need to find pictures to see how it looks, if you have never seen one. Why is maple syrup not made in Northern Quebec?

2. Find as many reasons as you can why farming is carried on more easily in the Eastern Townships than in Northern Quebec.

3. On a map of the world trace the journey of a bale of wool from Sydney, Australia, to Sherbrooke. It goes first to London by way of the Suez Canal, and then across the Atlantic Ocean to Canada and up the St. Lawrence to Montreal.



The heart of the St. Lawrence Lowland Plain.

The St. Lawrence Lowland Plain

A small but important region · Between the Laurentian Highlands and the Appalachian Region is the smallest and yet the most important region of the Province of Quebec. If a great giant had thrust his fist into Quebec over the upper St. Lawrence Valley and then carefully smoothed over the surface of the dent he had made, the result would not be unlike what we see. The plain is in the shape of a triangle, the eastern corner of which is at Quebec, the western corner at Hull on the Ottawa River, and the southern corner at the end of Lake Champlain, the source of the Richelieu River. After the ice sheet melted, this region was covered by an arm of the sea. The plain that we now see was the sea bottom. North of the plain runs the wall of the Laurentians, formed by the edge of the Laurentian Upland, and southeast of it runs the base of the Appalachians. Over these walls, or escarpments, tumble all the rivers running into the St. Lawrence. In almost every case the power from the falls has been used to develop electricity, and at the falls busy manufacturing towns have grown up. Power unused at the falls is carried by great cables to other towns and cities miles away.

Already we have in this abundant water power one reason why so many people live on this plain. Let us see what other reasons we can find.

When the French first came to Quebec, they settled on this plain along the St. Lawrence, and today there are still many remains of these early settlements. There are ribbon-like fields, old stone houses, and a few stone windmills. In many of these homes live the descendants of the farmers who

An old stone house with its stone windmill.

Canadian Pacific Railway Company

The city of Montreal and the surrounding districts.

worked these same farms almost three hundred years ago. But the farms are still producing well and will continue to do so because this is one of the finest farming regions in Canada.

Unlike most of the rest of the Province, this plain has deep, rich soil, and the level land makes it easy to use farm machinery. The rainfall is heavier here than in most of Quebec, and the growing season is three or four weeks longer. In addition to all these advantages, right through this plain runs the St. Lawrence, bringing the ships of the world one thousand miles into the heart of the continent.

Although there are no minerals of great value in the St. Lawrence Lowland, building-stone is common, clay for bricks is found in several places, and near St. Johns is a kind of clay called kaolin, which is made into porcelain for bathtubs and other bathroom fixtures. Near the northern end of Lake Champlain is a fine grade of marble.

Montreal · Almost at the centre of this plain, on an island in the St. Lawrence, is Montreal, the largest city of Canada. Since the greater part of the life of this plain depends upon Montreal, serving it and being served by it, we must learn something about the city and its needs.

Let us see if we can discover why Montreal has grown to be a city of about a million people, larger than Quebec or Trois Rivières, which are older than it is. Look at the map on this page and the picture on page 46. We shall make a list of the reasons for the growth of this city because they will help you to understand the growth of other cities.

James Sawders

Lake freighters unloading grain at one of Montreal's great grain elevators.

1. First, Montreal is a port, and ocean ships can come to its docks. This is also true of Quebec and Trois Rivières, but just above Montreal are the famous Lachine Rapids, which prevent large ocean ships from passing the city. Thus Montreal, as you know, is said to be *at the head of ocean navigation* on the St. Lawrence.

2. Although the larger ocean ships can go no farther, smaller boats pass the rapids and continue on up the St. Lawrence to the Great Lakes, which lead them one thousand miles beyond Montreal, into the middle of the continent. These boats pick up cargoes of many kinds, but chiefly wheat, and bring them to Montreal to be reloaded on ocean ships. To care for these cargoes, Montreal harbour has great grain elevators, and a large cold storage plant in which meat, fruit, butter, and other products can be stored.

3. These are not the only routes meeting at Montreal. From the northwest comes the Ottawa River, which joins the St. Lawrence at Montreal. See the map on page 75. Naturally the products of its valley, the chief of which is lumber, come into Montreal. Then from the south comes the Richelieu, which is shown on the map on page 73. If you follow this river southwards, you will come to Lake Champlain, in which the Richelieu has its source. The southern end of Lake Champlain is not far from the source of the Hudson River. Follow down the Hudson, and you reach New York on the Atlantic Ocean. This valley of the Hudson and Richelieu is one of the most important transportation routes in North America. This is why the first railway in Canada was built to connect Montreal with the Richelieu. Along this route by train, by truck, and by boat in the summertime, goods are being carried back and forth between the largest city in Canada and the largest city in the United States.

4. Because Montreal lies at the centre of a fertile plain, it is certain of having a supply of many of the foods it needs. In return for the food it gets, it sends out all sorts of manufactured goods to the small towns and villages round about.

5. Because the St. Lawrence runs past its doors, Montreal has an abundance of water for all its needs. Some cities have to bring their drinking water in huge pipes for hundreds of miles, but Montreal is more fortunate.

6. An abundance of water power on all sides encourages manufacturing, and where coal is needed, it can be brought in easily by boat from Nova Scotia and from the United States.

7. Lastly, there are plenty of workers for all the mills and factories. The city attracts many young people from the country round about who want to work there.

For all these reasons it is easy to see why Montreal has grown to be such a large city. There is one great disadvantage to its growth, however. For nearly four months during the cold weather the river freezes over, the boats cannot reach the harbour, the port is closed, and goods from western Canada must pass out through the ports of Halifax in Nova Scotia, St. John in New Brunswick, or Portland and New York City in the United States.

Courtesy of Canadian National Railways

A crowd of commuters about to board a train in a Montreal station at the end of the day.

Workers and customers in a branch office of the bank in which John Smith works.

City occupations. Now how do you think the people who live in Montreal make a living? Make a list of the industries that you might expect to find in Montreal, and then check your list with the following paragraphs.

The wheat brought in from the west is made into flour, and some of this flour is made into bread. Iron that comes from west of Lake Superior is made into all kinds of things, from tacks to locomotives. Copper from the mines of Noranda is refined, and then made into wire and many kinds of electrical apparatus for the many power plants. Oil and sugar from abroad are refined as they are at Halifax. Some of the sugar goes to candy factories. Clay and limestone that are found on the island are made into cement, so much used in building. The many people round about must be clothed, and so there are woollen, cotton, and silk mills, and factories that make men's and women's clothing, boots and shoes, hats, and furs.

Besides all these industries and many others, Montreal has two universities, one French and one English; the head offices of the chief railway companies, banks, insurance companies, and lumber companies. The city, as you see, is an educational and commercial centre as well as a manufacturing city. As you know, banking is an important business. A clerk in one of the big banks in Montreal is glad to tell us something about the work that he does. Here is his story.

"My name is John Smith, and I work in a big bank on St. James Street in Montreal. My home is in Valois, and so it takes me a long time to reach the bank. I take a train at Valois about quarter past eight in the morning, and with a great many other 'commuters' I ride to Montreal. From the station I take a street car to reach the bank. That is the part of the trip I dislike. At this time of day the cars are so crowded that we are packed in until we can hardly breathe. Fortunately I do not have far to go, and I am always thankful when I succeed in struggling out of the car door.

"The bank in which I work is very large, with hundreds of clerks. Like all other workers, we have our troubles. You boys and girls who sometimes frown at your 'sums' in school should see the rows and rows of figures with which we have to work. To be sure, we have wonderful machines that add, subtract, multiply, and even divide for us, never making a mistake. Sometimes, though, we spend hours and hours trying to find a

mistake some person has made. We can't go home until we do find the mistake and 'balance,' or get the right answer, as you would probably say.

"No doubt you would like to know what we do in a bank. Let me tell you some of the things we do.

"When the cotton mills here in Montreal want to buy raw cotton, they come to the bank and buy a 'sight draft,' which they send to Memphis, in the southern United States, with the order for the cotton they want.

"Sometimes in the spring a farmer does not have enough money to buy his seed. He comes to the bank to borrow the money he needs. If we think he is honest and will be able to pay us back later on, we give him the money and he signs a 'note' promising to pay what he has borrowed by a certain date, and also to pay the bank a certain extra amount for lending him the money.

"The other day a big firm of jewellers wanted to send a man to South America to buy gems, or precious stones, for rings. Firms in South America do not want, and cannot use, our Canadian money; so the man came to the bank to buy 'travellers cheques,' which are good anywhere in the world. They are also safer to carry than cash, as no one but the person whose name appears on the cheque can cash it.

"Then there are thousands of people who want a safe place to keep the money they are not using. They bring it to the bank and we take care of it for them. Since the bank has the right to use their money while it is in its care, it pays them interest for this right. In this way a person's money earns more money, and at the same time is in safe keeping.

"These are only a few examples of the work done by a bank, but they will show you how we serve both business firms and ordinary people."

Feeding a city. Behind the city of Montreal is Mount Royal, the stump, or core, of an old volcanic mountain peak. The tree-covered mountain slopes are used as a park and playground both summer and winter.

The level fertile plain round about Montreal is used chiefly to raise food to feed the city dwellers. Near the city, where the land is the most valuable, the farms are used for the raising of vegetables and small fruits such as strawberries, raspberries, currants, and gooseberries. This kind of farming is called *truck farming* or *market gardening*. Apples, too, are a common crop here. The best-known apple-growing district is at Abbotsford, not far from the small manufacturing city of Granby. The orchards are on the lower slopes of another old volcanic peak much like Mount Royal. There are, in all, eight of these old volcanic peaks which rise steeply from the level plain. Along the northern border of the plain, tobacco-growing is becoming important. Flax is grown in several parts of the plain.

Not far from the city we find dairy farms. The St. Lawrence Plain is one of the chief hay-producing regions in Canada, owing to the good soil and abundant rainfall. In many places bees are kept. These gather honey chiefly from the clover and buckwheat

Harvesting tobacco not far from Montreal. The leaves will be hung up in the barns to dry.

James Sawders

blossoms. Still farther from the city mixed farming is common, the chief crops in addition to hay being oats, buckwheat, and root crops such as potatoes and turnips. Poultry and pigs are kept, and the eggs and meat are sold in the city. Many small canning factories use the surplus fruit and vegetables, and cheese and butter factories use the surplus milk and cream.

The textile industry. All over the plain considerable manufacturing is carried on. The two commonest types are the making of textiles and the manufacture of pulp and paper. To find out more about the textile industry, let us see what a worker in one of the Montreal cotton mills has to say.

"My name is Nora Murphy, and I work in a big cotton mill in Montreal, along with my mother and my sister Rose. My father works nights for the railway, and my older brother works at Lachine for a company making steelwork. Lachine is a large city on the St. Lawrence just southwest of Montreal. My younger brother is still at school.

"When I first went to work two years ago, I thought it was very exciting going to the big mill, seeing so many people, and having my own money to spend. But now I am often tired of doing the same thing day after day and listening to the noise of the looms.

"But you want to know about my work. I work in the weaving room where the thread is woven into cloth. There are rows of looms the whole length of the huge room, and we girls go from one machine to another seeing that everything is working properly, and changing the bobbins and spools when they are empty. The spools, or spindles, carry the thread for the *warp*. These warp threads are drawn side by side on to a roller a yard wide, and run the length of the cloth. The bobbins carry the *woof* threads that run back and forth, in and out, across the cloth.

Photographed by Associated Screen News Ltd.

Opening a bale of cotton in a cotton mill. The bale is bound with a number of metal bands.

"Perhaps you would like to know what happens before and after the weaving process.

"The raw cotton is grown in the southern United States, where the summers are longer and hotter than they are here. After the seeds have been removed from the fluffy white *bolls* on the plants, the cotton is pressed into bales, each weighing 500 pounds. The bales are covered with jute sacking and bound around with metal bands. Their journey north to Montreal may be first by river boat or barge on the Mississippi, and then by train to the border between the United States and Canada. There the bales

A cotton loom. Find the bobbins and the warp and woof threads.

Photographed by Associated Screen News Ltd.

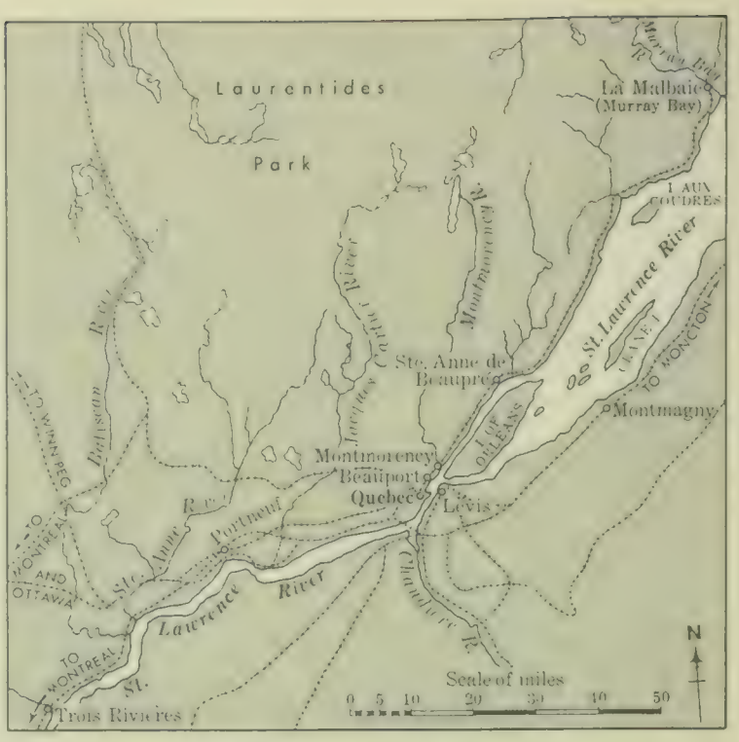
are unloaded from the freight cars and fumigated to kill any harmful insects that might enter Canada in the cotton. Once more the cotton is loaded on to cars to finish the journey to Montreal.

"When the bales reach our mill they are unwrapped and the cotton is fluffed up until it is about twice the size of the bale. Then it is cleaned of any remaining seeds or twigs. This fluffing and cleaning is repeated several times before the cotton goes to the *carding* rooms. There in a machine it is teased, or combed, over and over again to straighten out the tiny fibres. The finer the cotton goods to be made, the oftener the carding must be repeated. At last the cotton is ready for *spinning*, or twisting into thread. From the spinning rooms the thread on the big spools and bobbins comes to us for weaving.

"Even after the cotton leaves us as cloth it is not ready for sale. It must be dyed, or printed in patterns, and then starched and pressed. You did not realize, did you, how many people had handled and worked over the material in your dresses and shirts? Sometime perhaps you will visit a cotton mill. When you do, I am sure you will be astonished at all the buzzing, whirring, clanking machinery that you will find."

One of Quebec's old stone gates, and part of the wall which enclosed the city in early days.

Courtesy of Canadian National Railways



The city of Quebec and its surroundings.

Quebec · Montreal is not the only city of this region. At the eastern end of the plain stands Quebec at a narrowing in the St. Lawrence. It is a beautiful city, the second largest in the Province, and the only walled city in North America. Part of the city is built on high cliffs overlooking the river, and crowning these cliffs is the citadel, or fortress. At the foot of the cliffs and along the river is Lower Town. Here the streets are narrow and many of the buildings are very old. Since Quebec is the capital of the Province, we find the Parliament Buildings there. It also has a great university, Laval, and many churches, the bells of which are forever ringing. Its harbour is large and so deep that the largest ships can enter easily. Near Wolfe's Cove there are docks for large passenger liners. Quebec has grain elevators and large pulp mills, boot and shoe factories, and iron foundries.

Study the map above showing the Quebec District. Notice how the city is located where the St. Lawrence begins to widen out to form its *estuary*. Quebec is the first port of importance on the river. At the foot

of the falls at the mouth of the Montmorency River there are large cotton mills.

Market gardens. Near Quebec are market gardens which supply the people of the city with fresh vegetables and fruits. On many of these farms modern machinery is used, but on some the work is done mostly by hand as it has been for centuries. Suppose we visit one of these gardens in the Island of Orleans. Madame Laframboise is glad to tell us of life on the farm on which she lives. Here is her story.

"My name is Madame Laframboise and I live, with my husband and children, on the Island of Orleans, in the St. Lawrence River, not far from Quebec. My husband's people have lived on this farm for more than two hundred years. Not long ago a man from the city wanted to buy our farm to build a summer hotel on the land. Not for a minute would my husband think of selling his land! Our farm is not large, like the farms in the Eastern Townships or those around Montreal, but we always have much work to do. We raise vegetables and small fruits for the market in Quebec. We keep a horse, a few cows, a pig or two, and some chickens, and for feed for them we grow hay, oats, and turnips; but most of our land is used for our market crops.

"Market gardening is hard work. Long before the snow has gone we have to start many of our seedlings in hot beds and cold frames. As soon as the ground is dry enough after the snow has gone, my husband and my older sons dig in, very carefully, the fertilizer that was placed on the land after the fall ploughing. To keep our land in good condition we must keep it well fertilized, and my husband is always studying in the winter how best he may do this.

"When the land is ready for planting we put in seeds of vegetables like carrots, beets,

G. A. Driscoll, A.R.P.S., Quebec, P.Q.

Madame Laframboise in her fields overlooking the St. Lawrence River.

peas, and beans, and plant potatoes. As the earth grows warmer, and there is less danger from frost, we set out our seedlings: lettuce first, then cabbages, cauliflowers, and last of all, when it seems safe, tomatoes, green peppers, and cucumbers. Setting out the little plants is back-breaking work which

Picking strawberries on the Laframboise farm.

G. A. Driscoll, A.R.P.S., Quebec, P.Q.

An air view of Valleyfield, on the St. Lawrence above Montreal. Its textile mills may be seen at the left. Hydro-electric power to run the mills is furnished by the river.

must be done when the earth is moist and the sun is not too hot. Even with all our care a late frost may come along and kill all the young plants that we have worked so hard to grow and set out.

"Do not think that our work is finished when the seeds and plants are in the ground. Indeed, no; sometimes I think it has just begun. From that time on until the crops are ready for market, we fight a battle against weeds that would choke out our little plants, and against all sorts of insects and diseases that would destroy our crop. We hoe, we water, we spray; and then we hoe, we water, we spray some more; the work is never done.

"But the vegetables are not the only things to think of. We have our fruits as well—strawberries, raspberries, currants, gooseberries, and also a few apple and plum trees. A new strawberry bed must be made every year, by transplanting the young plants, and the bush and tree fruits must be sprayed, and pruned or thinned out at the proper time.

"When the time comes to take our produce to the market, there is the work of picking the berries and fruit as they ripen, and pulling the vegetables, cleaning and tying them in bunches, ready to sell. We often work very late at night to finish this, so that everything may be as fresh as possible when it reaches town. On market days we get up very early to start our trip to town. Even so, it is much easier now that my husband owns a truck which he can drive across the bridge that joins the Island to the mainland. In the old days, when we had to go by boat and team, it was very tiresome.

"As soon as we reach the Champlain Market in Quebec, we go to the stall we rent, and arrange our vegetables and fruits in as attractive a fashion as possible. Soon our customers arrive, and we are busy selling. Often someone says to me, 'Ah, Madame, what fine carrots these are, so smooth and clean!' or 'What big gooseberries! I never saw anything like them!' Then I am happy, and I forget how my back ached while I was picking them.

"In the winter we have not, of course, so much to do. There are still the animals to

care for and the housework to do, but I have time to make hooked rugs to sell to the tourists in the summertime. It is a busy life, oh yes, but I would not change to live in a city, no, never!"

Other cities · Other cities of the St. Lawrence Lowland are Trois Rivières, Hull, and Shawinigan Falls, of which you have already heard; St. Hyacinthe, which makes organs, boots and shoes; Valleyfield, which has large textile mills; and Sorel, at the mouth of the Richelieu River, where shipbuilding is carried on. All these cities have other industries as well. Perhaps it may interest you to find out what they are.

THINGS TO DO · **1.** Plan an exhibit for the Province of Quebec at a world's fair. In doing so, decide first what are the interesting or important things about the Province you would want the rest of the world to see, and second how best you can show these.

2. Draw a large map of the Province of Quebec. On it show the St. Lawrence River and its six most important tributaries. Print in the names of six important cities. In red crayon or ink print in the words *dairying*, *market gardening*, *lumbering*, *fishing*, where these industries are carried on.

3. In your notebook make a list of those cities and towns of Quebec where pulp and paper are manufactured. Opposite the name of each place write the name of the river on which it is located. Use your book and your map. Try to find a reason for building the mills where they are.

4. Do the same for textile industries.

5. In what ways does Quebec stand first among the provinces of the Dominion? Re-read the chapter to find out.

6. Give as many reasons as you can why:

a. The Province of Quebec as a whole has a small population.

b. Most of its people live in the St. Lawrence Lowland.

c. Hay is widely grown on the St. Lawrence Lowland.

d. Lumbering is not important there.

e. Mining is not an industry of this part of Quebec.

7. Debate with your classmates this topic: Resolved that it is better to live on a farm in the Eastern Townships than in the city of Montreal.

8. Now that you have read several stories of life in the Province of Quebec you will see what a variety there is. Nora Murphy would not be at all at home if she had to work in Madame Laframboise's garden. Neither would Jules Tessier know what to do if he were to find himself in the bank staring at the rows of figures that John Smith uses every day. It takes a great many people doing many different kinds of work to make the business of any country run smoothly.

Of course there are many, many other workers in Quebec from whom we have not heard, and others who are doing the same kind of work, but in a different way. For instance, at Asbestos, near Richmond, there is a great asbestos pit where the work is done in a way quite different from the way it is done at the Thetford pit about which you read. Try to find out how it is done.

Perhaps your father or big brother or sister is doing a kind of work not described in this chapter. Find out at home what it is and how it is done and tell the class about it.

Gold mining is an important industry in Northern Quebec. Try to find out how the work is done and write a story about it as it might be told by one of the miners.

EXTRA READING · Some books to tell you more about work in the Province of Quebec.

Living in Canada, by Margaret J. Vant and Gladys Robertson (Ryerson Press)

Canadian Neighbours, by Harry E. Amoss (Ryerson Press)

Social Studies for Canadians, by George A. Cornish and Selwyn H. Dewdney (Copp)

Man at Work, His Industries, by Rugg and Krueger (Ginn and Company)

Story of Gold, by Maud and Miska Petersham (John C. Winston Company)

IV · North of the Great Lakes

National Film Board Photograph

Our lake freighter taking on coal at a dock in Toronto.

THE PROVINCE OF ONTARIO

THE EARLY HISTORY

West of Quebec lies Ontario. This province was settled much later than Quebec. Étienne Brûlé first explored the region around the Great Lakes area and was followed by Champlain in 1615. Traces of much earlier explorations by the Norsemen lead some to believe that these hardy sailors came in by way of Hudson Bay. Of Champlain's journey, however, we are certain. On the map, page 95, trace his route from Montreal up the Ottawa River and its tributary, the Mattawa, across the portage to Lake Nipissing, and down the French River to Georgian Bay. A monument now marks the spot where he first saw Georgian Bay.

The rough country which he crossed after leaving the Ottawa Valley is a part of the Laurentian Upland. This region of rocks, lakes, and forest covers most of Northern Ontario, just as it does Northern Quebec. Look at the map on page 9 to find what region occupies the southern part of Ontario north of Lake Erie and Lake Ontario.

The French never really settled Ontario, and, at the time of the English conquest of Canada, they had only a few forts along the Great Lakes. Of these, Fort Frontenac, where Kingston now stands, was the oldest.

After the American Revolution, Loyalists, driven from their former homes in the United States, settled in large numbers along the Upper St. Lawrence and the Great Lakes, as they did in the Maritimes. The chief settlements they made were in what is now the county of Glengarry, between the Ottawa River and the Upper St. Lawrence; along

the shores of the Bay of Quinté on Lake Ontario; around Fort Niagara; and across the river from Detroit. When Lord Simcoe came to serve as the first Governor of Upper Canada, as Ontario was then called, he invited settlers from the newly formed United States to come to Canada. Later, people from England, Scotland, and Ireland, as well as Germans from Pennsylvania, made homes for themselves, chiefly in the southern part of the Province, where better soil and a longer growing season than in other parts of the Province promised a good opportunity for farming. One of the most successful of these settlements was started by an Irishman called Thomas Talbot in what is now Elgin County on the shores of Lake Erie.

At first most of the new settlers were busy with farming and lumbering, but as the natural wealth of the country was discovered and means of transportation improved, the southern part of the Province developed into a most important industrial region. Since much of the importance of Ontario is due to the great waterway formed by the St. Lawrence and the Great Lakes bordering its southern boundary, let us take a trip from Montreal to the head of the lakes at Fort William and see for ourselves why Ontario, which has a smaller area than the Province of Quebec, has about one third the population of Canada. As you read, follow our route on the map on page 86.

FROM MONTREAL TO TORONTO

At Montreal we board a lake freighter. Soon the whistle blows, the gangplank is pulled in, and we are off. We have scarcely more than started when the whistle blows again as we enter the first lock of the Lachine Canal.

Canals and locks · Most of us know that the canals are built around the rapids in which the water flows too swiftly for a boat to pass. Of course the water in these rapids is flowing downhill to the Atlantic. Therefore as we go west, we have to travel uphill in our boat.

A lock is like a large step in a water staircase. The boats going upstream climb the step, or lock, and the boats going downstream descend the step. At each end of the lock there are strong doors, or gates, made of

A freighter in the Welland Canal. We shall pass through this canal during our trip up the lakes.

Canada Steamship Lines Limited

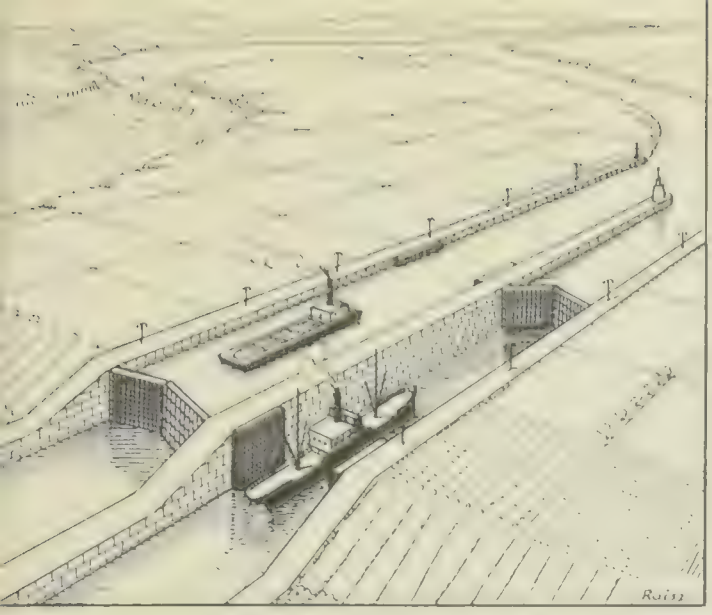
A map showing the route of our trip from Montreal up the lakes.

iron and wood. As our ship sails up the lock we see that the upper gates are closed, but that the lower gates are open to allow us to sail in. After we are inside the lock, the lower gates are closed and more water is let into the lock. Our ship rises up and up until the people at the top of the wall are level with the deck on which we are standing. Then the upper gates are opened, and we sail into the Lachine Canal. Study the diagram on page 87 and explain how a boat would be "locked through" going downstream.

The Lachine Canal · Around the Lachine Rapids in the St. Lawrence the Lachine Canal has been built. On both sides of the canal we see many big factories, manufacturing plants, and warehouses. Most of these have docks at which boats can be tied up. We decide that a location alongside a canal is a fine one for a manufacturing plant.

As we go upstream and rise higher and higher above sea level, we begin to understand why the part of Canada which we are soon to enter used to be called "Upper Canada," and why Quebec, which we are leaving, was called "Lower Canada."

At first it is great fun to pass through a lock, but before long we become tired and wish that we might travel faster. Some people take a train or a bus from Montreal to Prescott to avoid the locks. Some of the boats coming downstream are able to "shoot" all but the worst of the rapids, but all going upstream must avoid them.



This diagram of a lock shows how ships are lifted or lowered to different levels.

The last rapids · After leaving Lachine, we cross Lake St. Louis, which is a widening of the St. Lawrence where the Ottawa River enters it. At the other end of the lake we enter another canal. Here are three lock "steps," which together raise our boat about 100 feet. When these are passed, we find ourselves sailing between flat green fields. This part of Ontario is a part of the St. Lawrence Lowland Plain.

After passing through Lake St. Francis, we enter the Cornwall Canal. Cornwall is a busy town, with large paper mills and rayon mills. Freight for these mills can come by boat, as there are docks close by. When we reach Prescott we have passed all the St. Lawrence rapids, and from now on we have faster sailing. At Prescott the Canadian Government has built elevators which store grain that has been unloaded from the large lake boats that do not pass through the locks. The river is very busy at this place, with many boats passing up and down. Lumber is the chief cargo going upstream, and grain coming downstream. Some boats cross to Ogdensburg, just across the river, in the United States.

The Thousand Islands and Kingston · Before reaching Kingston, we pass through a very beautiful stretch of the river among the Thousand Islands. Many of these islands are very small, but some are large enough for beautiful summer homes. As our ship makes its way along the channel, we notice the blackish masses of solid rock that form the islands. On both sides of the river from here to Kingston we see, too, the same type of bare rock jutting out here and there. Between the rock masses are clumps of hardy evergreens growing in shallow soil. This part of the St. Lawrence is very different from the grassy farm lands which we have seen all along the river valley. By reading the map

A rayon mill in Cornwall. Here machinery turns wood into rayon cloth for many purposes.

National Film Board Photograph

Among the Thousand Islands. The bridge is part of one connecting Canada and the United States.

From Ewing Galloway

on page 9 we learn that this rocky region is part of that covering most of northern Ontario.

Soon our boat docks at Kingston. Kingston is an old and interesting city. Because of its position at the outlet of Lake Ontario it grew quickly during the early days of the province when Toronto was little more than a village. Here was the first school and the first bank in Upper Canada. From its wharves the first steamboat on Lake Ontario sailed for Toronto in 1817. At one time Kingston was the capital of Canada.

Today Kingston is not a large city (see page 240 for population) but is usually thought of as a "college town," since Queen's University and the Royal Military College are located there. However, Kingston has important industries: locomotive works, where railway engines are made, nylon mills, and a factory where aluminum articles are made. The aluminum is shipped to Kingston from Arvida, about which you read on page 63.

Lake Ontario · Soon after leaving Kingston we come out on the wide expanse of Lake Ontario. Here it is easy to imagine that we are at sea, although at least one shore is usually in sight. All along the way we see boats of many kinds, most of which are large lake freighters. Some of these are like the boat we are on—long and low except for the bow and stern. In the distance each one looks like two small boats some space apart. The engines are at the stern, or back, of the boat; and the bridge, from which the boat is steered, is at the bow, or front. One reason for steering a boat from the front when it is going through the narrow canals is that it is easier to keep it from bumping into the sides of the canals and locks. The low central part of the boat has many *hatches*, or covered openings. When the boat comes alongside the dock all the hatches are opened, and grain or other cargo can be loaded in many of the openings at once. Since the Great Lakes route is closed by ice for at least four months in the year, lake boats are always hurrying, loading and unloading as quickly as possible.

We reach Toronto just about sunset and have a beautiful view of the tall buildings of the city against the glowing sky.

Part of the sky line of Toronto. The large building at the left centre is a hotel, and the tall, slim building at the right is a bank.

National Film Board Photograph

TORONTO

Toronto is the second largest city in Canada and the capital of the Province of Ontario. It has a fine harbour, which is usually crowded with boats during the summer. Along the shore of the lake are bathing beaches, promenades, and an amusement park, while across the bay are several islands which are used for summer residences, a park, and a yacht club. As you read about Toronto, try to discover some of the reasons which make some cities large.

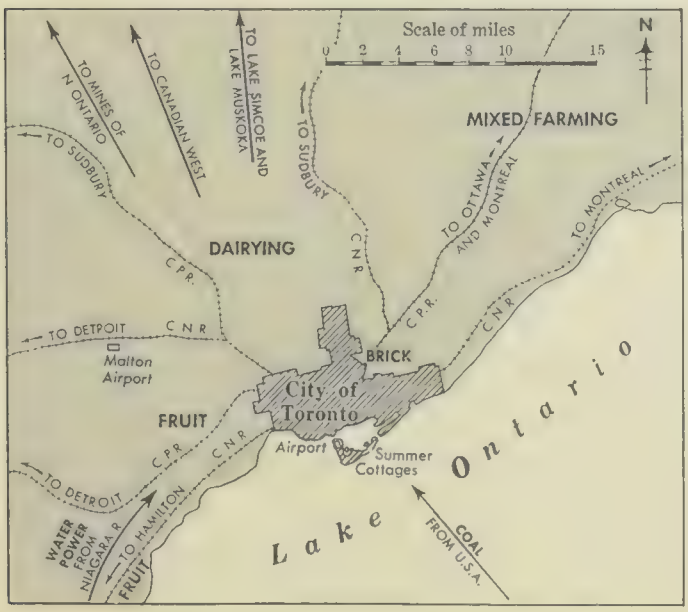
The first place you must look for help is your map. If you look at the map on pages 94–95 you will see that Toronto is near the western end of the north shore of Lake Ontario. This means that boats sailing from any place on the Great Lakes can reach its harbour. Raw materials such as iron, lumber, and wheat are carried by lake boats to Toronto, where they are manufactured into finished products. Coal which is needed for manufacturing is brought to Toronto by boat from the country south of Lake Erie.

Now look at the country north of Toronto. You will see that almost due north of the city lies Georgian Bay. The overland route between it and Toronto was a short cut for the Indians travelling from Georgian Bay to Lake Ontario. Where the Humber River empties into the lake the Indians used to camp. They called their camping ground Toronto, or "place of meeting." Later the French decided that this would be a good place to meet the Indians and trade for their furs. At this spot they built three forts at different times, but abandoned or destroyed them when the English conquered Canada in 1763.

Courtesy of Canadian National Railways

Part of the ramparts and some of the buildings of old Fort York are still standing in Toronto.

Toronto and its surroundings. What reasons for the city's growth can you find on this map?



lies Georgian Bay. The overland route between it and Toronto was a short cut for the Indians travelling from Georgian Bay to Lake Ontario. Where the Humber River empties into the lake the Indians used to camp. They called their camping ground Toronto, or "place of meeting." Later the French decided that this would be a good place to meet the Indians and trade for their furs. At this spot they built three forts at different times, but abandoned or destroyed them when the English conquered Canada in 1763.

When Governor Simcoe found that Fort Niagara, or Newark as it was sometimes called, was not a safe place for the capital of Upper Canada, he moved across to the site of Toronto and called his new capital York. This name was used for the town for 50 years.

To encourage the growth of York, Governor Simcoe ordered that roads be built to connect it with other settlements. The two most important roads were Dundas Street leading west to the Detroit River, and Yonge Street leading northwards towards Georgian Bay. Today roads, railways, and

Niagara Falls from the Canadian side of the river. The Canadian Falls are those at the right.

airways fan out in all directions: west to Windsor and Sarnia, north to Owen Sound on Georgian Bay and the mining region of Northern Ontario, and east to Ottawa and Montreal. Thus banks, insurance companies, and business offices in Toronto can control the trade of the Province. Also the many farm products of the surrounding country can be shipped easily and quickly to markets in the city.

With its many advantages, it is to be expected that Toronto would have many important manufacturing industries, and this is indeed true. We will learn more of these later, however. People of Ontario think of Toronto as the leading educational centre in Canada. Its various colleges, its university, and its normal school give higher education to many students. Toronto has become the most important centre in Canada for printing and publishing books and magazines in the English language.

A trip to Niagara · From Toronto it is easy to visit Niagara Falls. We can go by train or by bus around the west end of Lake Ontario, or cross the lake by a small excursion steamer. Let us choose the water trip, as we can see more of the Niagara River. Our steamer carries us across the lake and up the river as far as Queenston. Here, on the top of the cliff which towers above the river, we see the monument built in memory of General Brock. It was near this place that he was killed in 1812 while defending Canada from the invading United States troops.

From Queenston we continue by bus. Far below us is the Niagara River hurrying down the gorge. At last we come to the falls themselves. The best view is from the Canadian side where, through the mist of spray that is constantly rising, we can see both the Canadian and the American Falls, separated by Goat Island. People come from many lands to see this beautiful sight. Not only are the falls beautiful, but they are useful too, since great hydro-electric plants on both sides of the river manufacture power for both Americans and Canadians. On page 63 you

learned what hydro-electric power is and how it is produced. You probably know that *hydro* comes from a Greek word meaning "water." Niagara Falls is one of the reasons why Ontario has such cheap electrical power. Above the falls, the Niagara River is quiet and slow-moving. We would like to follow it to Lake Erie, but we cannot explore further if we are to catch our boat back to Toronto.

A TRIP TO FORT WILLIAM

To make the rest of our trip up the lake we decide to take a freighter sailing out of Toronto. Some of the lake freighters carry a few passengers in addition to their cargo. Leaving Toronto, we once more cross Lake Ontario, but instead of heading for the mouth of the Niagara River we make for Port Weller at the outlet of the Welland Canal, which we must use to get around Niagara Falls. This canal was rebuilt in 1930 to allow even the largest lake boats to pass. Its locks are built like two flights of steps and raise our boat over 300 feet. At Port Colborne, at the southern end of the canal, we wait for a short time before sailing out into Lake Erie. Here, through a cloud of smoke, we get glimpses of other freighters entering or leaving the canal. Ahead are three grimy coal carriers from the port of Erie on the southern shore of the lake. They are bringing United States coal to Canadian cities. Beyond them is a grain boat bringing wheat from Port Arthur. On one side of us is another large lake boat carrying iron ore from Duluth to Hamilton.

At last we are off into Lake Erie, but even here there is plenty to see, as many boats are passing, not only east and west, but north and south between Canada and the United States.

The next evening we are making our way up the Detroit River. Soon the great buildings of Detroit tower over our ship as we pass

National Film Board Photograph

Two lake freighters passing through one of the locks in the Welland Canal.

Associated Screen News Ltd.

A grain boat being loaded with wheat at a Port Arthur elevator for the trip down the lakes.

Part of the huge oil refinery at Sarnia.

Imperial Oil Limited

A map showing iron-ore shipping routes through the Great Lakes to the steel-manufacturing centres on the lake shores. Explain the importance of the "Soo" Canal as a link in this water route.

between this city and Windsor. We are surprised to see that there does not seem to be much boat traffic across the river between these two important manufacturing cities. The captain laughs when he hears us wonder about this. He explains that there is a tunnel beneath the river and a bridge over the river connecting the two cities.

Sarnia · At the outlet of Lake Huron is the city of Sarnia, which has the largest oil refinery and the only synthetic rubber plant in Canada. These use not only oil from wells close by, but also crude oil from the United States brought in by pipe line. Between Sarnia and Port Huron is a tunnel under the St. Clair River which carries the tracks of the Canadian National Railways into the United States.

From Sarnia our boat sets out across Lake Huron. Once again we are travelling on one of the inland seas.

The "Soo" Canal · Between Lake Huron and Lake Superior we sail along the St. Mary's River and enter the last of the locks of the St. Lawrence waterway. These locks of the "Soo" Canal in some years are part of the busiest waterway in the world. Indeed, there are so many boats passing here that there are five locks side by side, one in Canada and four in the United States. Through these, from early spring until late fall, passes an almost unending procession of boats. Although there are many different cargoes carried, grain from the Canadian prairies and iron from the region at the western end of Lake Superior are the most important.

On either bank of the canal is a city of Sault Ste. Marie—one in Canada and one in the United States. The Canadian city is the larger of the two. It has pulp and paper mills and important iron and steel works.

Some of the iron ore used here comes from Ontario, and some from the American ports on the south shore of Lake Superior. The coal, which, as you know, is needed in the manufacture of steel, comes by water from the American coal fields south of Lake Erie. Here at Sault Ste. Marie steel is made, where iron coming east meets coal going west, and where the heavy bars and sheets of steel can be shipped out on lake boats.

Lake Superior · And now we are out on Lake Superior, the largest fresh-water lake in the world. When a strong wind blows, waves as high as those on the ocean make sailing difficult. It is wonderful to think that we are now almost 2000 miles from the open sea. Some small ocean steamers carry cargoes to ports on this inland sea. We have climbed up through so many locks that we are now 550 feet higher than we were in Montreal.

The "Twin Cities" · At last we arrive at Fort William, on the northern shore of Lake Superior, the end of the Canadian inland waterway. Fort William and near-by Port Arthur are often known as the "Twin Cities." Here, just as in Halifax, St. John, Montreal, and Prescott, there are big grain elevators. They are larger, however, and all together hold more grain than elevators at any other port in the world. Here the grain coming from the prairies by train is stored to await shipment by water to the east. Sometimes it has to be stored all winter while the lakes are frozen over. As in Montreal, there are flour mills here. Some of the flour is used in this part of Ontario, and some is shipped to the east. The Twin Cities also have pulp and paper mills which use the lumber from the northern woods and the power from the swiftly-flowing rivers. There are shipbuilding yards too, which supply the constant need for new ships to carry grain, flour, and paper. At Port Arthur are ore docks built to handle the iron ore from Atikokan,

Canadian Pacific Railway

One of the big grain elevators at Fort William.

which lies about 135 miles to the west. Locate this important iron area on the map on pages 94–95. Try to find information about the mine there, which is at what used to be the bottom of Steep Rock Lake.

THINGS TO DO · **1.** Now that you have completed your trip along the great waterway that forms the southern boundary of Ontario, try to see how many reasons you can think of why this waterway is very important to the Province.

2. Perhaps some of you would like to find out how this water route was used by the early settlers. The following books tell much about how they lived and travelled: *Pioneer Days in Ontario*, by Henry and Paterson, and *Finding New Homes in Canada*, by Guillet.

When the water was drained from Steep Rock Lake in order to reach the iron deposits at its bottom, this rock wall had to be blown up.

National Film Board Photograph


A
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B
95°
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90°
D
1
55°
2
50°
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4
Nelson R.
Hayes R.
Gods R.
Fort Severno
Sachigo
Severn
Trout L.
PRINCIPAL INLAND FISH
Whitefish
Pickerel
Trout
Tullibee
Herring
Winisk
Attawapiskat R.
Attawapiskat L.
Cat L.
Lake Winnipegosis
Lake Manitoba
Lake Winnipeg
Red R.
Winnipeg R.
GOLD
Red L.
Lake St. Joseph
Albany
English R.
PULPWOOD
Ogoki
Assiniboine R.
Keewatin
Kenora
Lake of the Woods
Lac Seul
LUMBER
HEIGHT OF LAND
AND
PULPWOOD
Lake Nipigon
Rainy R.
Rainy Lake
Atikokan
COPPER
GOLD
IRON
Nipigon
Port Arthur
Ft. William
TROUT
WHITEFISH
Red L.
N. D.
Winnibigoshish L.
MESABI RANGE
Lake Superior
Leech L.
Duluth
MINN.
MICH.
Mississippi
S. D.
Minneapolis
Minnesota R.
WIS.
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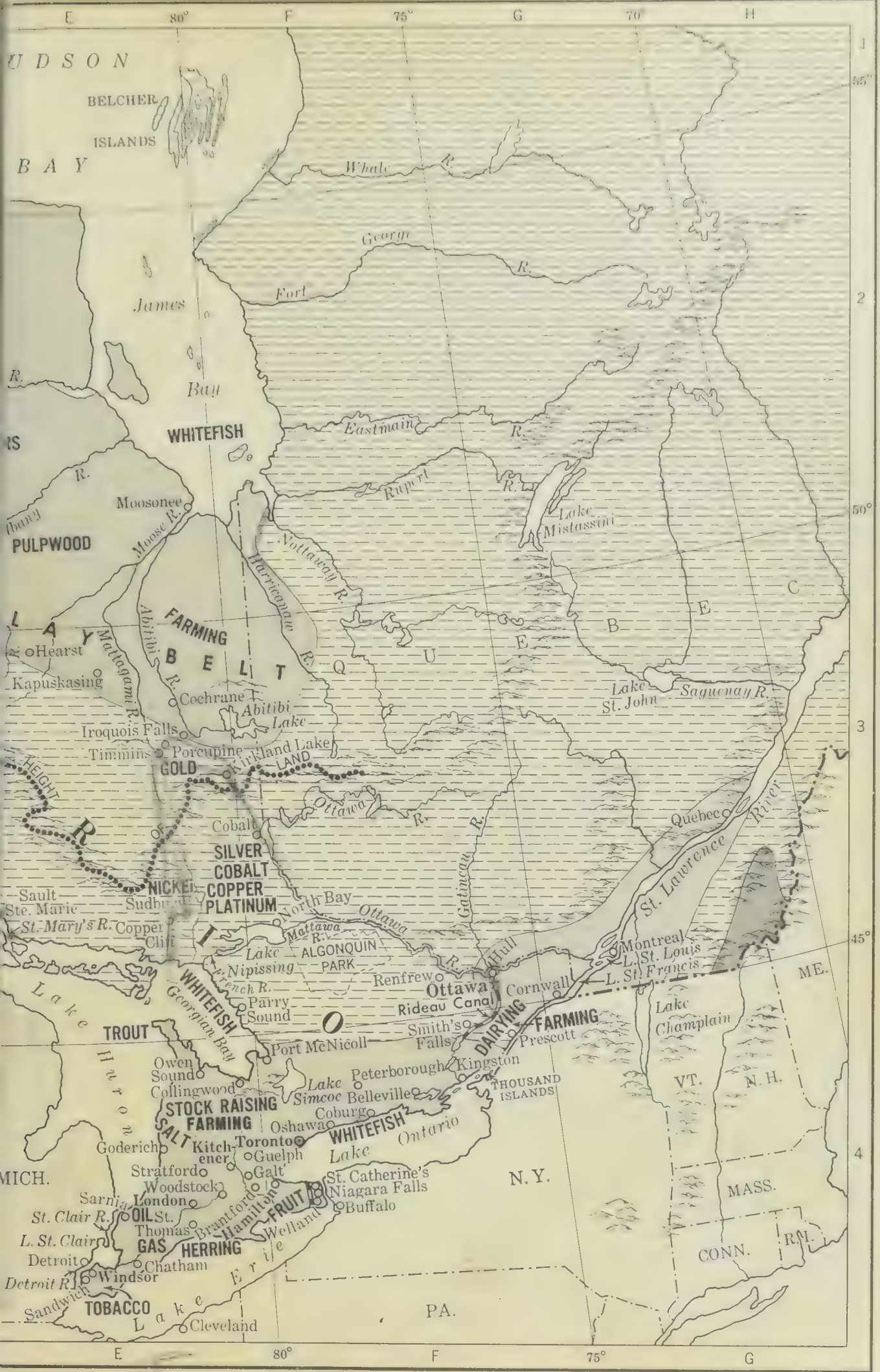
ONTARIO
Scale of statute miles
0 50 100 150 200 250
★ Capital of dominion
⊙ Capital of province
Lowlands and interior plains
Uplands and plateaus
Mountains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UDSON
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BELCHER
ISLANDS
Whale R.
George R.
Fort
James
Bay
R.
WHITEFISH
Eastmain R.
Rupert R.
Lake Mistassini
Moosonee
Moose R.
PULPWOOD
Abitibi R.
FARMING
BELT
Mattagami R.
Hearst
Kapuskasing
Cochrane
Abitibi Lake
Iroquois Falls
Timmins
Porcupine
Kirkland Lake
GOLD
LAND
Ottawa R.
Harricanaw R.
Lake St. John
Saguenay R.
Quebec
River
St. Lawrence
Cobalt
SILVER
COBALT
COPPER
PLATINUM
NICKEL
Sault Ste. Marie
Sudbury
St. Mary's R.
Copper Cliff
North Bay
Mattawa R.
Ottawa R.
Gatineau R.
Hull
Montreal
L. St. Louis
L. St. Francis
ME.
Lake Nipissing
ALGONQUIN PARK
French R.
Renfrew
Ottawa
Cornwall
Rideau Canal
Georgian Bay
WHITEFISH
Parry Sound
TROUT
Smith's Falls
DAIRYING
FARMING
Prescott
Lake Champlain
Port McNicoll
Owen Sound
Collingwood
Peterborough
Kingston
THOUSAND ISLANDS
VT.
N. H.
Lake Simcoe
Belleville
Coburg
STOCK RAISING
FARMING
SALT
Oshawa
WHITEFISH
Toronto
Ontario
Lake
Goderich
Kitchener
Guelph
Stratford
Galt
St. Catherine's
Niagara Falls
N.Y.
MICH.
Woodstock
Sarnia
London
Buffalo
MASS.
St. Clair R.
OIL
St. Thomas
Brantford
Hamilton
FRUIT
Welland
L. St. Clair
GAS
HERRING
Erie
CONN.
R.I.
Detroit
Chatham
Detroit R.
Windsor
Sandwich
TOBACCO
Lake
Cleveland
PA.
E
80°
F
75°
G

Farms on the Lake Ontario Plain. From a study of the picture can you tell what any of the crops are?

FARMING IN ONTARIO

The Clay Belt · Look at the map of Ontario on pages 94–95 and locate the part of the Laurentian Upland that is shown on the map. You have learned that in that region there is little opportunity for farming. But before you turn away, look again and find the Clay Belt, which stretches from a point west of Hearst, then east by Lake Abitibi, and into the Province of Quebec. Here in a long trough in the hard rock, clay soil, laid down at the bottom of an ancient lake, is deep enough and fertile enough to make farming possible. In spite of the short growing season, quite a variety of crops can be grown: hay, which makes dairying possible, oats, potatoes, and hardy vegetables. Many new settlers have taken up land in this region, and although life is not easy, most of them are making a good living.

Now look again at the map and find the plains of Southern Ontario, for this is where you will expect to find the best farms. What reasons can you think of that will explain why this should be so?

The Eastern Lowlands · Beginning at the eastern border of the Province, find the plain along the Ottawa and the St. Lawrence. As this is a part of the St. Lawrence Lowland, you would expect to find the same types of farming as in the lowlands of Quebec —mixed farming, dairying, and market gardening.

The Lake Ontario Plain · The next plain we find lies north of Lake Ontario. Here, as in most of the Province, there is much mixed farming, but dairying is important, particularly near the cities, and many apples are grown. Near the western end of this plain market gardening becomes more important, and small fruits, and vegetables such as peas, beans, tomatoes, and green corn are raised for canning.

The Niagara Peninsula · Rounding the end of Lake Ontario, we come to one of the most important fruit regions in Canada—the Niagara fruit belt. The fruit is grown on a

The Niagara Peninsula. What reasons can you find on this map for the importance of fruit-growing here?

narrow plain between Lake Ontario and a ridge of high land known as the "Niagara Escarpment." It was over this escarpment that we saw the water of the Niagara River tumbling to form the falls, and it was up this escarpment that our boat climbed by way of the locks of the Welland Canal. The escarpment serves as a windbreak, and the large water area of Lake Ontario helps to prevent frosts, both in the late spring and in the early fall, thus giving the fruit a longer time to ripen. Peaches and grapes are the chief fruits grown in this district, but there are others—pears, plums, cherries, raspberries, and strawberries. Particularly during the picking season this is a very busy place; crowds of students and other young men and women from the cities come in to help to pick, sort, and pack the fruit.

A vineyard in the Niagara fruit belt. Most of Canada's grapes come from this region.

North of Lake Erie · There is another excellent farming region north of Lake Erie. Because this part of the province is the most southerly part of Canada, it has longer, hotter summers, and shorter, less severe winters than does the rest of eastern Canada. The large lakes close by further moderate the climate, warming the land in winter and cooling it in summer. There is not so much rain here during the year as there is in most of Quebec and the Maritimes. Still there is enough moisture for certain crops, and farmers study the soil, learn about the local weather, and decide which crops can be grown in order to bring in the most

money. But let us hear the story of Mr. Garson who has a farm at Aylmer, in Elgin County, north of Lake Erie. Find Aylmer on the map on page 101.

The Garsons' new farm · The day the Garsons moved to their new farm they were surprised to see a farm truck turn in at their gate and make its way up the long driveway to the house. Painted in neat white letters on the door of the truck were the words "George M. Porter, Aylmer, Ont." Mr. Garson went out to the yard to meet the visitor, but not before the two young Garsons, who were everywhere at once, eager to explore their new home.

"Just dropped in to say 'Welcome,' " called the man from the truck. The two men shook hands, and were soon deep in conversation about the Garsons' farm, while the children stood listening.

"I'm glad to know that this place will be farmed again," said Mr. Porter. "It's good land, and well located too," he added, pointing off towards the canning factory, which could just be seen about a mile across the level fields in the direction of the town.

"Yes, I hope so," replied Mr. Garson, "but I shall almost need to learn how to farm all over again after running a dairy farm in the Ottawa Valley. There the soil was heavy clay, and here it is so sandy it troubled me. Then yesterday as we drove in we noticed that ploughing has already begun on some farms. It seems very early to be working the land."

"That's the best thing about this district," put in Mr. Porter. "There's none of your sticky clay here to slow up the spring work while you wait for the soil to dry enough for ploughing. The ground here is light and sandy, and that is why we are often able to get our vegetables started weeks ahead of other districts."

"Just the same, I'm not trusting to luck,"

Courtesy of Canadian Canners Ltd., Hamilton

The cannery to which Mr. Garson sent his vegetables to be processed.

said the newcomer. "Long ago I learned that it is best to have the soil examined by an expert. Before I finally bought the place, I sent a sample of the soil here to the Agricultural College at Guelph. As a result of their tests and their knowledge of this district they gave me a helpful report. It showed that the main thing the land needs is fertilizer."

"You are fortunate in having these fields with a good cover of clover," said the visitor. "You will find that it adds just what the fields need to produce good crops.

"Well, good farming to you, Mr. Garson," he went on. "Drop in on us any time you pass our way. You will see the name on our mail box by the highway."

"Good-bye, Mr. Porter," called Ted and Ann.

The weeks that followed were busy ones on the farms around Aylmer, and especially at the Garson farm. Ploughing and seeding were soon finished, in spite of a few rainy days. Long rows of peas, beans, and corn were planted—each crop in a separate field. Later, hundreds of tender tomato plants were set out. Mr. Garson was especially careful this first year, and over each young tomato plant he fixed a protecting paper cover.

The vegetables grew rapidly, sending down their roots into the light, easily-cultivated soil. The gentle spring rains and the long, sunny days of June and July brought

the plants along so that they were beautiful to see. Acres and acres of beans and peas were soon ready for picking. Since the farms of this district were not near enough to a large city to market the crops fresh, nearly all the vegetables were sent to the cannery at Aylmer. There the peas, corn, tomatoes, and other vegetables were cooked and sealed in tins or bottles. Some of them were made into soup, pickles, and catchup. Processed in these ways, the food does not spoil, and it is then shipped to all parts of Canada. You will remember reading on pages 26–27 about the canning of fish at Black's Harbour, New Brunswick. Each year thousands of gallons of Ontario catchup are used there for packing sardines in tomato sauce.

Read the labels on tinned goods at home or when you go to the store. Find out what different vegetables from Ontario farms are sold in tins or bottles.

West of Mr. Garson's farm much of the land is used for growing sugar beets, corn, and wheat. In the most westerly part of the region, east of Lake St. Clair, tobacco is an important crop. Apples and other fruits are found throughout the whole region.

Higher land east of Lake Huron · East of the southern end of Lake Huron where the land is higher, mixed farming is common, and cattle, sheep, and hogs are raised. There is some dairying there, but less than in the wetter eastern parts of the province.

MANUFACTURING IN SOUTHERN ONTARIO

You have learned about the fine farms in Southern Ontario, but you must not think that only farming is carried on here. Look at the map which shows where the people of Canada live, and you will see that Southern Ontario and the district around Montreal in the Province of Quebec form the most densely populated part of Canada. Where many people live close together in North America, you may be fairly certain that the work they do is manufacturing, and this is indeed the busiest manufacturing region in Canada. In this small area live half the people of Canada, producing more than half of our manufactured goods.

Now let us see if we can discover what these people are making.

Food products · We have already learned of the canning factories that use the vegetables and fruits that are not eaten fresh. Where dairying is carried on, milk products are manufactured: butter, cheese, and condensed and powdered milk.

The livestock raised in the Province and the animals imported from western Canada make possible large slaughtering and meat-packing plants, such as those in Toronto. Where meat packing is carried on, other industries spring up to use the hides, horns, hoofs, and other parts of the animals. Thus we have tanning and leather works, and the manufacture of soap and gelatin.

The wheat that is produced in the Province and that brought in by boat to the many lake ports leads to flour milling and the making of biscuits. Breakfast foods are also made; corn flakes at London, oatmeal at Peterborough, and shredded wheat at Niagara Falls.

Textiles and clothing · Such large numbers of people need quantities of clothing. Not only does Ontario supply most of its own clothing needs, but it is able to manufacture enough to send some to western and northern Canada. Cotton goods, rayon goods, hosiery, knitted goods, and, to a smaller extent, woollen goods, are made in Ontario's mills. Raw cotton brought in easily from the United States, rayon made from the pulp of the northern forests, and wool from Ontario's sheep provide the raw materials for these industries. In "light industries," such as

A map of Southern Ontario.

these, much of the needed power is supplied by Ontario's falls and rapids. We saw the great hydro-electric plants at Niagara and Queenston. There are others north of Toronto. Some power is even bought from companies in the Province of Quebec. Most of Ontario's power is developed and sold cheaply by the Hydro-Electric Power Commission of Ontario.

Iron and steel · The manufacture of iron and steel is one of the most important of all the industries of Ontario. You remember that there are iron and steel works at Sault Ste. Marie, and now we shall visit a steel mill at Hamilton.

To make steel, iron ore, coal, and limestone are required. Only one of these, limestone, is found near Hamilton, but the coal and the iron ore can be brought in cheaply by boat, for Hamilton has a good harbour, and, as shown on the map, it is conveniently located on the routes of the lake freighters. The coal is brought across Lake Ontario, and the iron ore from the shores of Lake Superior. Some of the iron ore comes from the Steep Rock mine, but much comes from the Mesabi Range on the west shore of Lake Superior; that is, on the United States side. That is the greatest iron-mining region in the world.

As we pass through the gate into the grounds of the steel mill, our first impression is that we have entered a city within a city. We stop at the gate house to ask permission

The Steel Company of Canada Ltd.

The steel works at Hamilton are a small city in themselves.

to visit the mill. We are still a long way from the great smoke stacks, and we are glad that we do not have to walk all the way. There are fine hard-surfaced roads, but there are also signs along the way which warn cars to go slowly. Railway tracks run right into the buildings, and we notice several freight cars standing in the yard.

We see a lake freighter being unloaded. This is our first glimpse of the red iron ore. We park the car and prepare to see something of what is done inside these huge, spreading buildings.

The foreman of the plant is expecting us, and we are glad to have someone to explain the many strange sights and sounds around us. Overhead at the blast furnace we see large metal cars which run on rails and are pulled by steel cables. These cars carry tons of iron ore, limestone, and coke to the furnace, where it is mixed for the process which is to follow. The coke was made by baking coal in coking ovens in one of the buildings which we passed as we drove around the grounds.

Beside the blast furnace we see the hot liquid ore being poured out into a huge ladle.

The Steel Company of Canada Ltd.

Next, blasts of hot air enter near the bottom of the furnace and burn with the coke where the temperature soon becomes so hot that the ore is smelted; that is, iron is separated from the other materials in the ore. The liquid iron, now white hot, is poured into ladles and transferred to the open hearth in its molten state.

It is in the open hearth furnace that steel first appears. Into this furnace the molten iron from the blast furnace is poured, where it meets with scrap steel and other substances which are used in making this important product. Here more heat is applied, and experts watch the molten metal in the furnace. At intervals during the process, samples are taken to be tested for quality, after which the liquid metal, which is now steel, is poured

into large moulds, where it cools to form ingots.

The ingots are heated again and go to the rolling mill, where they are rolled into the shapes and weights ordered. Finally, in another room, the pieces are cut to size, and each has a number painted on it. Thus the proper pieces are kept together and made ready to be delivered to the job.

Manufactures of iron and steel · These are too numerous to mention. They are of all sizes and shapes, from wire and nails to marine engines, mining machinery, and locomotives. However, most iron and steel is used in the manufacture of automobiles and agricultural machinery.

Automobiles. Most of the automobiles made in the United States come from Michigan. You can find this state on your map just west of Southern Ontario. The first Canadian automobile factories imported most of their supplies from the American manufacturers, and so you can see why the Canadian plants are situated in Southern Ontario in such places as Windsor, Hamilton, and Oshawa. Cars made in these cities are sent all over Canada and to many other parts of the British Commonwealth.

Automobiles are "assembled" from many separate parts, such as engines, bodies, wheels, tires, lamps, and radiators. Many of the parts are made in smaller factories which are built close to the main automobile factories. The families of the many thousands of workmen employed in all these factories require furniture, boots and shoes, clothing, housing, and thousands of other things. It is therefore not difficult to see why Southern Ontario is the greatest manufacturing area in Canada.

Agricultural machinery. What has been said about the automobile industry is also true about the making of agricultural machinery. Many of the Canadian companies are

Ford Motor Company

Finished cars at the end of the assembly line in a Windsor automobile factory.

branches of firms in the United States, which supply them with some of their "parts." Toronto, Hamilton, and Brantford all manufacture farm machinery and implements. In this line, too, Ontario not only meets her own needs, but ships much farm machinery to the western provinces, and even abroad. The factory workers earn money which helps them to buy most of the products of the farms; so industry and agriculture help each other.

Furniture · The manufacture of furniture is carried on in such towns as Kitchener, Stratford, Guelph, Galt, and Waterloo. Why

This worker in a Stratford furniture plant is doing her part in the making of a chair.

National Film Board Photograph

do you think this is so? In the early days Southern Ontario was covered with fine forests of hardwood trees. From the wood of these trees the early settlers made their furniture. Some of them gained great skill, which has been passed down from father to son to the present day. Thus the factories have remained where there are good workers.

Electrical appliances · Where electrical power is cheap, as it is in Ontario, many people use electrical appliances: electric stoves, washers, refrigerators, radios, toasters, and other things. Hamilton is one of the most important centres for manufacturing these articles. Electrical goods require much copper wire in their manufacture, and as you will see, copper is mined in Northern Ontario.

Chemicals · In southwestern Ontario, salt is produced. It is refined at Windsor and Goderich, and at Windsor chemicals depending on salt are also manufactured.

SOMETHING TO DO · Draw a large map of Southern Ontario. Show the chief agricultural regions, and what they produce. Print the names of the cities you have been reading about. Beside each city show what it manufactures.

The Parliament Buildings overlook Ottawa and the Ottawa River from Parliament Hill.

Royal Canadian Air Force Photograph

The city of Ottawa and its surroundings.

OUR CAPITAL

The capital of Canada is in Ontario on the banks of the Ottawa River, which forms the boundary between Ontario and Quebec. Across the river from Ottawa you can see the busy city of Hull, in Quebec. On the river bank are huge mills in which paper is made from logs. The logs were cut in the woods of the north and then floated down the Ottawa and Gatineau rivers. While Ottawa is mainly important because it is the seat of the Dominion Government, it is also a big lumbering centre, like Hull. It is one of the most important cities in Canada for the manufacture of goods made of wood.

Ottawa's early growth was almost entirely due to its position at the meeting of water routes. It is at the head of navigation on the Ottawa River where it is joined by the Rideau River. Colonel By of the Royal Engineers built the Rideau Canal south to Lake Ontario. At one time this canal was an important water highway, but it is small and is used very little now, as most freight is carried by the railways.

Just upstream from the bridge joining Ottawa and Hull are the Chaudière Falls. Champlain was the first white man to see these falls. Three hundred years ago he described them as "marvellous," for "the

river descends a height of twenty fathoms with such impetuosity that it makes an arch nearly 400 paces broad." In 1841 Upper and Lower Canada were united into one province, and in 1858 Ottawa, then known as Bytown, was chosen by Queen Victoria to be the capital of the new country of Canada.

Ottawa is a beautiful city. There are magnificent Parliament Buildings and many large offices used by the Dominion Government. In February, 1915, the original Parliament Buildings burned down, and only the library was saved. However, a newer and finer "Houses of Parliament" was erected, and this is a building of which all Canadians may be proud. The Dominion Government continues to make Ottawa more beautiful. Plans have been made to turn it into a Federal District with an area of some 900 square miles on both sides of the Ottawa River. This project is Canada's War Memorial to those who served and lost their lives in the Second World War.

NORTHERN ONTARIO

Rocks, lakes, and swamps · On your map of Canada on page 9 find the edge of the Laurentian Upland near Ottawa. Follow it westwards from near Algonquin Park to Sault Ste. Marie, and then along the north shore of Lake Superior. The line that you have been tracing is a very important one. North of it we are in a land quite unlike that of Southern Ontario. Here is much bare rock of very great age. Lakes seem to be scattered everywhere, and there is much of the swampy land that is known as muskeg. The soil is usually thin and poor. Winters are cold and long, with the temperature often dropping to 50 degrees below zero at places such as White River. Summers are warm, but gardens are sometimes spoiled by early frosts. The growing season is too short for many crops. Clearly this region is of little use for farming.

Canadian Pacific Railway Company

Loading refined copper bars at Copper Cliff.

What kinds of work do most of the people in Northern Ontario who are not farmers do? If we travel northwards from Toronto by train, we shall soon discover the answer.

Important metal resources · Not far from Sudbury is a town named Copper Cliff. Its name might make you think that it is a mining settlement. Close by are the most important nickel mines in the world. The fumes from the chimneys of the refinery have killed the grass and the bushes around the town. Much of the nickel ore also goes to the great refineries at Port Colborne. Besides nickel and copper, the very valuable mineral platinum is extracted from the ore.

Travelling northwards on the Ontario Northland Railway, we pass through Cobalt. Early in this century it was one of the most

A pile of gold bricks at the Porcupine mine.

Ontario Department of Mines

The principal railway lines of Canada.

important silver-mining camps in the world. Some of the mines still operate, but many are in ruins and are flooded. Still farther north we reach the modern gold-mining towns of Kirkland Lake, Timmins, and Porcupine. In and around these towns are scores of other mines, and others are opened from time to time. This is one of the most important gold-mining areas in the whole world. It is a continuation of the Noranda-Rouyn region in Quebec.

Wealth of the forests · Miners are interested in what can be found deep in the ground, but there is also wealth on the surface in Northern Ontario. Our train rolls on through forests of pine, balsam, spruce, and tamarack. These dark-green northern forests supply wood for making paper—such paper as this book is made of. Where there are waterfalls to provide cheap electrical power and plenty of wood to be floated down the rivers, there are giant pulp and paper mills such as those at the town of Iroquois Falls and at Kapuskasing, farther west.

Railway workers · This northland is a region of forest workers, paper-mill workers, and miners. There is one more very important group of people—those who work the railways. On the map above find all the railways that cross Northern Ontario. There are three main east-west lines in addition to the Ontario Northland, which goes all the way north to James Bay. Can you imagine the number of people who are needed to keep the trains running through this northern wilderness? Because the train service is good, the people who live in the small towns of Northern Ontario can buy many of their supplies in the large cities of Southern Ontario, and can obtain the Toronto newspapers before they are more than a day or two old.

A fine tourist country · Northern Ontario stretches westwards to meet Manitoba. The country between Lake Nipigon and the Lake

Department of Lands and Forests

One of the many beauty spots which attract tourists to the area around Kenora.

of the Woods is wonderfully attractive to fishermen and hunters. Now that there are airways and roads as well as railways to the region, many thousands of visitors go there from large cities of eastern Canada and the United States.

The most westerly town of importance in Ontario is Kenora. It is an important stop on the Canadian Pacific Railway, and there are flour mills and lumber mills beside the tracks. But the town is also on the beautiful Lake of the Woods where the sheltered bays among scattered wooded islands are lined with summer homes. Because new roads have been built, tourists can easily reach the area from Duluth, Minneapolis, and other United States cities.

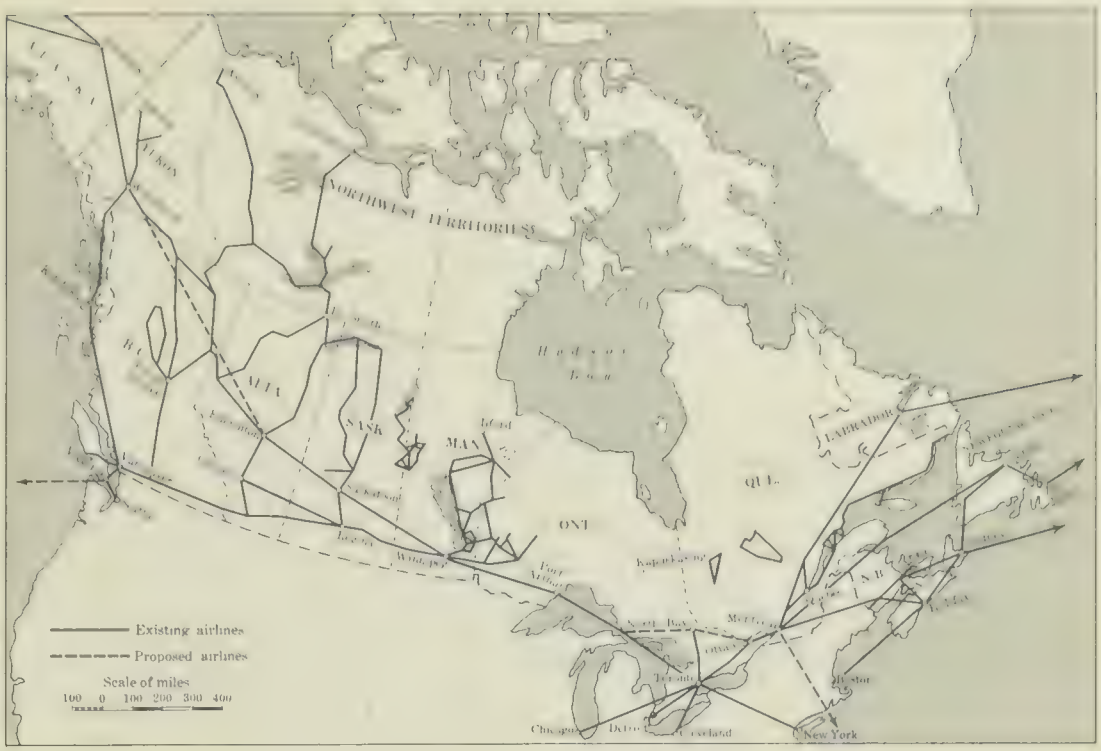
But Ontario's tourist country is found not only in the north and west. Farther south are two well-known tourist resorts: Muskoka Lakes, where there are summer cottages and hotels, and Algonquin Park, farther east. In this park, forests and wild life are protected so that city people may find a place where life is unspoiled by noise, bustle, and smoke.

Four ways west · There are now four ways of reaching the far northwestern part of Ontario from the east. The oldest of them is the water route by the Great Lakes, which you have already studied. Next came the railways. They were followed by the airway operated by Trans-Canada Air Lines. Now a fourth route has been added—that of the Trans-Canada Highway.

ONE OF THE GOVERNMENT'S ACTIVITIES

Judith Rogers speaks · Ottawa, being the capital city of Canada, is the centre of all the activities carried on by the Government of our whole nation. The operation of post offices and the minting of money are only two of the many important services of the Dominion Government. Find out at home about some of the other ways in which we are served by the Government. Many thousands of people carry on the work in the offices at Ottawa. Judith Rogers, one of these workers, has something to tell us about her work.

"If you were to ask me where my home is, I would say that it is in Moncton, New



The principal air routes of Canada. Compare this map with the railway map on page 107.

Brunswick, for that is where my parents live and where I went to school. I took a business course in high school, and now I work in Ottawa in the office which attends to air-mail services.

"Here, on the west bank of the Ottawa River, are Canada's Parliament Buildings, surrounded by parklike grounds. This is where the men and women meet who are elected to represent each part of Canada. There are more than one hundred office buildings in Ottawa, where the work of the different departments of the Government is carried on much the same as in any other office.

"I come to work with hundreds of others at nine o'clock in the morning, and we finish the day at five o'clock in the afternoon. Fortunately, I live close enough to my office to walk to work. Most of the people have to take a street car or bus morning and night.

"All day long I work at my desk, typing letters which go to all parts of Canada and often to other countries as well. Since there are post offices in every city and town, and in almost every village, in Canada, we often send letters from our office to many different places. Though the work is hard, it is always interesting, and I have come to know the names of places in Canada that I had never heard of in school. Even though my part in the air-mail services is small, it is none the less important. You have already read how many people earn their living by different occupations connected with fish, farms, forests, or factories. Each of these industries depends on fast and sure mail service in order to buy and sell in distant markets. Besides speeding up the business of the world, the mails make it possible for us to send messages to friends wherever they may be. Thanks to the Postal Service, we need only go to the nearest familiar red letter box to air mail a message to any part of our great Dominion."

THINGS TO DO · **1.** Make a large outline map of Ontario. On it print the names of the Great Lakes and the chief lake ports. In a different colour print the names of the chief products of Southern Ontario in their proper places.

2. On your map of Ontario trace the routes of the following cargoes:

a. A load of paper from Fort William to Chicago.

b. A load of grain from Fort William to Prescott by way of the Welland Canal.

c. A load of flour from Fort William to Parry Sound by water, and then to Montreal by rail.

d. A load of iron from Duluth to Collingwood by boat, and from there to Toronto by rail.

e. A load of coal from Cleveland, on the south shore of Lake Erie, to Sault Ste. Marie.

f. A boat load of automobiles from Detroit to Buffalo.

3. Find as many pictures as you can to illustrate the two boat trips which you took on the Great Lakes. Arrange them in order in your notebook, and write a sentence or two about each.

4. Ask your teacher to help you to find out how grain is stored in an elevator and how it is loaded from an elevator into a boat.

5. Find out the difference between iron and steel. List as many uses for steel as you can.

6. Try to find at least two reasons why more manufacturing is done in Ontario than in Quebec. Remember that neither province has coal, but that each has an abundance of water power and a water route.

7. Give as many reasons as you can to explain why more agricultural implements are manufactured in Southern Ontario than in Quebec.

8. State one important industry of (*a*) Windsor, (*b*) Sarnia, (*c*) London, (*d*) Hamilton, (*e*) Sault Ste. Marie, (*f*) Peterborough, (*g*) Owen Sound.

9. Find out what industries are a result of stock raising in western Ontario and of dairying in eastern Ontario. Explain the reason for each.

10. Ontario produces more cheese than any other province. In what parts of the Province should you expect to find the cheese factories?

11. Go to your grocer's and see how many labels you can find on tinned goods or jams which show that they are made in Ontario. Locate on the map the places on the labels.

12. Find out how sugar is prepared from sugar beets, and how tobacco is dried.

13. Give three reasons why tobacco is grown in southwestern Ontario.

14. Why are there so many canning factories in Southern Ontario?

15. Find out all the uses you can for gold, nickel, and platinum. Where is each mined in Ontario? How is gold mined in Northern Ontario?

16. Locate two great "playgrounds" of Ontario. How are they used? Locate two important canals in Ontario. Why is each of these canals needed?

17. Name and locate each of these cities:

a. The capital of Canada.

b. The capital of Ontario.

c. The most important iron-and-steel centre of Ontario.

d. The nickel-mining centre.

e. Three gold-mining centres.

f. Five important lake ports.

g. The "Twin Cities."

h. Two railroad centres.

i. Two cities making breakfast foods.

j. Three cities manufacturing automobiles.

18. After re-reading pages 89–90 and 104–105 and any other material on Toronto and Ottawa that you can find, write a story of a visit to (*a*) Toronto and (*b*) Ottawa. Perhaps you can find some pictures to illustrate your story.

19. Choose the work that you would prefer to do if you lived in Ontario. Find out all you can about it, and where you would have to live. Then tell the rest of the class what you have found out.

20. Make a list of all the reasons you can think of why Ontario is the wealthiest province in Canada. When you have finished, re-read the chapter to see if you have omitted any reason.

BOOKS TO READ · For teachers:

This Is Ontario, by KATHARINE HALE (Ryerson)

For pupils:

Petroleum Industry (*America at Work Series*), by JOSEPHINE PERRY (Longmans)

Steel Industry (*America at Work Series*), by JOSEPHINE PERRY (Longmans)

The level prairie country of western Canada is well suited to the use of farm machinery.

THE PRAIRIE PROVINCES

The part of western Canada lying between Ontario and British Columbia is divided into three parts—Manitoba, Saskatchewan, and Alberta, and these three parts are known as the Prairie Provinces. Each of the three has its own capital city, with a legislative building and government offices. Winnipeg is the capital of Manitoba; Regina is the capital of Saskatchewan; and Edmonton is the capital of Alberta.

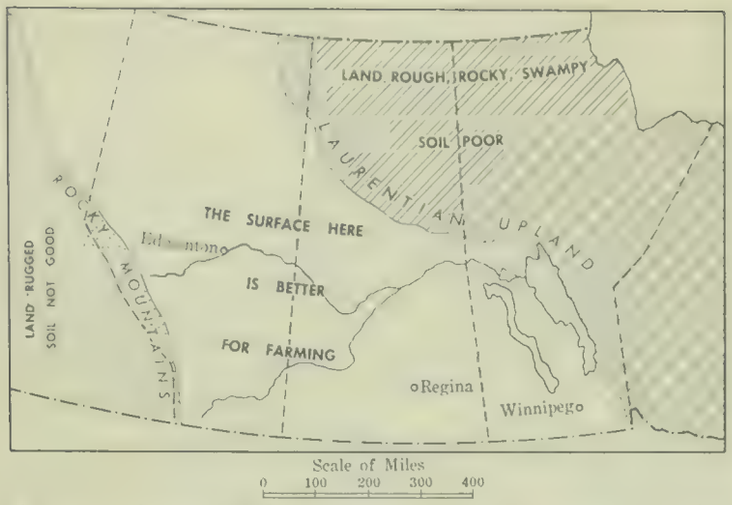
Find a picture of the coat of arms of each of the three Prairie Provinces. What can you learn about life between the Great Lakes and the Rocky Mountains from a study of these three coats of arms?

As the map on page 16 shows you, most of the people between the Great Lakes and the Rocky Mountains live in the southern part of the three provinces, while much of the northern region is empty. Do you think this is simply because people like to live where the winters are not too long and cold? As you read on, try to decide whether this is the only reason for the uneven distribution of people in these provinces.

Before you study further, work out the map studies on page 119.

THE NATURE OF THE PRAIRIES

A vast stretch of land · Manitoba, the most easterly of the Prairie Provinces, begins 275 miles west of Lake Superior. As we stand on the Trans-Canada Highway at the boundary between Ontario and Manitoba and look west beyond the sunset, we are facing the Rocky Mountains, nearly 900



A map showing the nature of the surface of the land in the Prairie Provinces.

miles beyond the sky line. From the United States border on our left to the northern boundary of the Prairie Provinces on our right is almost 800 miles.

The name "prairie" was given to some of this land by the French explorers who first visited it. The part they saw was covered with grasses, and the old French word meaning grassland is "praerie." Much of the Prairie Provinces, however, is very different from the land which these explorers saw. Along the western edge are the high, rugged peaks of the Rockies. To the northeast is the low plateau of the Laurentian Upland with its lakes, rocks, and forests. Much of the area between these regions is true prairie country. See the pictures on pages 123 and 126. Which one shows true prairie country?

An expanse of grasslands · What does the prairie look like? Those who have not seen it sometimes call it flat. It is not all level, and in the west some of it is quite hilly. Although most of it was once covered with grass, there are parts, especially along the banks of the rivers, that are clothed with such trees as poplar, willow, and birch. Many of the rivers flow in deep valleys cut as much as 100 feet below the level of the prairie. Here and there may be found shallow lakes known as *sloughs*, some of which dry up in the summer.

Many of the hilly expanses of the prairie are good grazing lands. After grazing near a ranch during the winter months, these cattle are being rounded up in late April so that they can be driven to their summer pasture.

National Film Board Photograph

WAYS INTO THE PRAIRIES

Early explorers · In 1670 the Hudson's Bay Company was founded in England, and to it was granted all the land the rivers of which drained into Hudson Bay. This land of course included most of what is now known as the Prairie Provinces. The Hudson's Bay Company still has trading posts all over northern Canada.

The first white man to reach the prairies was Henry Kelsey, who undertook to explore for the Hudson's Bay Company. It is not certain just where he went, but he must have reached the grasslands because on his return he surprised his listeners by telling them of great herds of buffalo roaming over level plains. Later, in 1731, a French explorer, La Vérendrye, came from Montreal with his followers in birch-bark canoes. He made his way by lakes and streams to the meeting place of the Red River and the Assiniboine, where the city of Winnipeg grew up many years later. There he built a fort and then continued westwards. The story of his journey, his hardships, and his disappointments makes interesting reading.

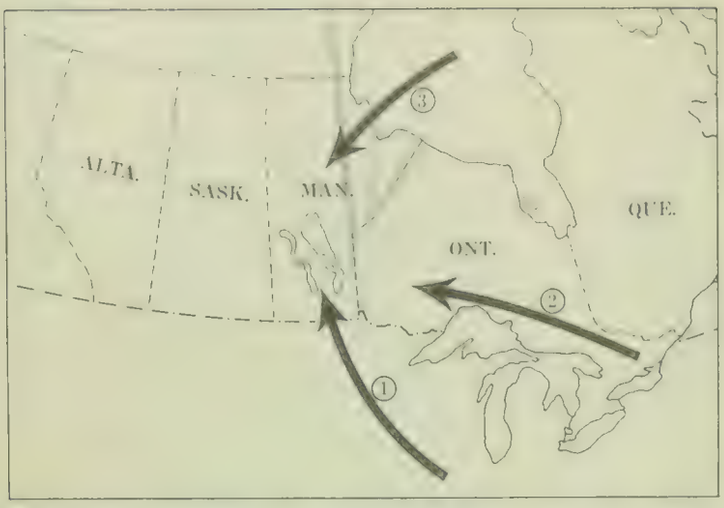
Settlement from the north · The first settlers were Scotsmen who came by way of Hudson Bay and the lakes and rivers of the north. They were sent out by Lord Selkirk in 1811, and reached the Red River the following year. After all kinds of difficulties from rival traders, floods, and grasshoppers, the settlers succeeded in reaping a harvest. To these newcomers the prairies were fertile lands with much warmer summers than in the lands they had found along the shores of Hudson Bay. Later a few settlers reached the prairies by way of La Vérendrye's long water route through Northern Ontario.

Settlement from the south and east · It was from the south that the next settlers arrived. They came from the farm lands of the United States and travelled northwards by the Red River Valley. They were surprised to find that others had arrived ahead of them by way of the far northern rivers. Finally, when the railway from eastern Canada was completed along the northern shore of Lake Superior, hundreds of thousands of settlers were able to enter without suffering the hardships of those who had been pioneers.

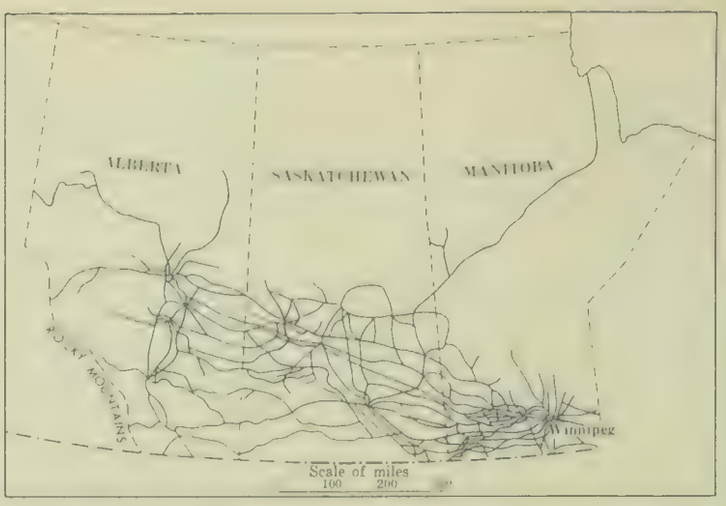
Courtesy of W. S. Dunlop

The La Vérendrye Memorial at St. Boniface, across the Red River from Winnipeg.

Prairie farmers from many lands · The thousands of settlers who reached the western prairies after the building of the railways came from all parts of Europe as well as from eastern Canada and the United States. Some had farmed the level prairies of the Ukraine, of Poland, or of Russia; others gave up their old homes among the northern forests of Finland or Sweden; while some came from the fertile valleys sheltered by the mountains of Norway, Austria, or Rumania. Others were from England, Ireland, Wales, and Scotland. People from all these distant lands and from many others brought their own languages, religions, and ways of living to Canada. They all remember the lands



The three routes into the prairies from the east that are used today.



The railway map of the Prairie Provinces shows areas that have been settled.

from which they came, but today most of them speak English, and every one of them has helped to build a new country among the rolling grasslands, trees, and lakes of the Prairie Provinces.

Using a map of Europe, find where these people came from. The Ukrainians, for example, lived in southern Russia.

Today's routes · Today there are still three ways into the Canadian prairies from the east (see the map above). One way lies through the United States, passing such cities as Chicago and Minneapolis. The second way is by rail or water from Ontario, reaching Winnipeg by way of Port Arthur or Fort William. The third route is from the northeast by railway from Churchill, which is located on the shore of Hudson Bay. Although this is the oldest gateway to the prairies, it is not used very much today.

WHERE THE PEOPLE LIVE

Close together and far apart · The homes of people living in the Prairie Provinces are arranged in different ways in different places. The farmers of southern Saskatchewan, for example, own large farms, some of which are more than a square mile in area. This means that the farm buildings are far apart. The people must travel long distances to visit one another, and the children may be several miles from a school. Along the banks of some of the rivers such as the Red River and the Assiniboine River the houses are close together and farmers have near neighbours, but the land back from the river has fewer houses on it. If you could see the mining town of Flin Flon from an aeroplane, you would notice people living close together in a town surrounded by completely empty land. What are the reasons for these different ways of arranging homes?

Railways and settlers · The map above shows us where the railway lines have been built in the Prairie Provinces. The lines are crowded close together near Winnipeg, but they spread out like a fan westwards and northwards until they reach the Rocky Mountains, through which we find only three lines running towards the Pacific Coast.

Building railways is much easier on level land than among mountains. In order to reach the Pacific Coast, the lines running westwards from the Prairie Provinces must find their way along valleys. There are very few such valleys through the rugged mountains. On the other hand, there are no such mountain barriers along the northern edge of the Prairie Provinces. Why are there few railways here? Railway lines are built to

A map showing the area included in each of the three prairie levels

places where people wish to travel and freight needs to be carried. This means that if the land has few uses, railways will probably not be built. It would seem that the northern part of the Prairie Provinces is not suitable for railway building. Why cannot men settle in the lands to the north? The answer is not an easy one. The surface of the land partly answers the question.

Three prairie levels · The real prairies are level or rolling country. The map on this page shows that the eastern part of the prairies is almost flat. This is sometimes called the "First Prairie Level." It is one of the flattest regions in the world. At one time it lay at the bottom of a vast lake which was several hundred feet deep where the city of Winnipeg now stands. We can still find the eastern and western edges of this lake, for they are marked by the beaches that were once washed by its waters.

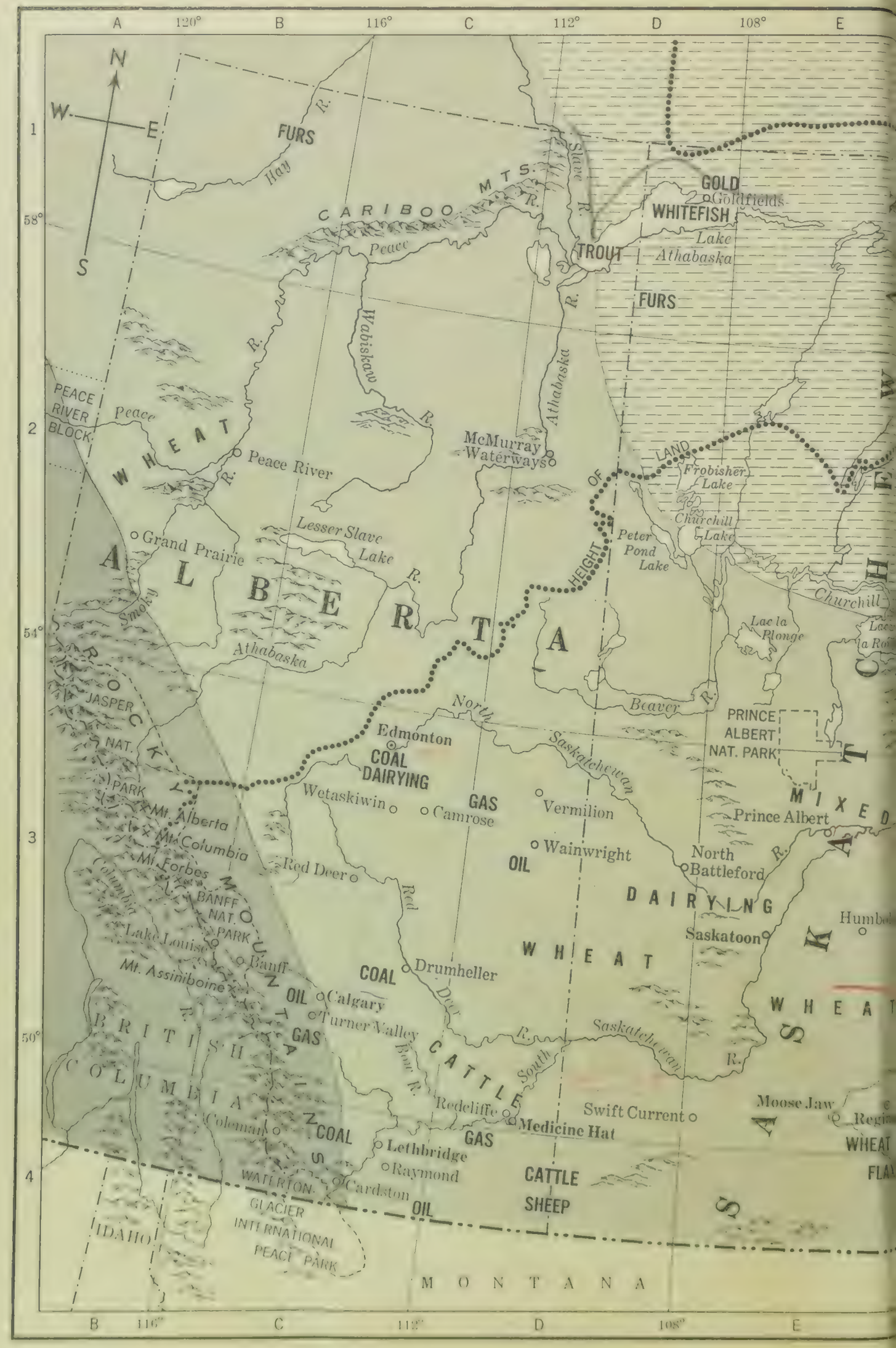
The lake drained away to the northwards, leaving behind several smaller lakes such as Lake Winnipeg, Lake Manitoba, and others, and the fertile plains of the Red River Valley. Beyond the western edge of this old lake, and at a higher level, is the second part of the prairies, shown on the map. It is sometimes spoken of as the "Second Prairie Level." It includes much of southern Saskatchewan and part of northeastern Alberta as well as western Manitoba.

Still farther to the west the remainder of the prairies rises in low hills to the foot of the Rocky Mountains. It is shown on the map as the "Third Prairie Level."

All three of the prairie levels are higher than the St. Lawrence Lowland, and also higher than most of the Laurentian Upland. The population map (on page 16) shows that most of the people of the Prairie Provinces live on these three prairie levels.

The region of few people · To the northeast of this region, which is part of the rolling plateaus of the Laurentian Upland, there are very few people. Mainly this is because making a living by farming is almost impossible among the bare, rocky hills, swampy hollows, and scattered forests. Yet there are some places where small stretches of level land should provide homes for farmers. Why do you think they are not used?

We must remember that farmers make their living by growing crops such as wheat


A 120° B 116° C 112° D 108° E
N
W E
S
1
58°
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54°
3
50°
4
FURS
Hay R.
Slave R.
GOLD
Goldfields
WHITEFISH
Lake Athabaska
TROUT
CARIBOO MTS.
Peace R.
Wabiskaw R.
Athabaska R.
FURS
PEACE RIVER BLOCK
WHEAT
Peace River
McMurray Waterways
LAND OF
Frobisher Lake
Churchill Lake
Peter Pond Lake
HEIGHT
Churchill R.
Grand Prairie
Lesser Slave Lake
Smoky R.
ALBERTA
Athabaska R.
Lac la Plonge
ROCKY
JASPER NAT. PARK
Beaver R.
PRINCE ALBERT NAT. PARK
Edmonton
COAL
DAIRYING
North Saskatchewan R.
MIXED
Wetaskiwin
GAS
Camrose
Vermilion
Prince Albert
Mt. Alberta
Mt. Columbia
Mt. Forbes
Wainwright
OIL
North Battleford
Red Deer
Red R.
DAIRYING
BANFF NAT. PARK
Lake Louise
Banff
Saskatoon
Mt. Assiniboine
COAL
Drumheller
WHEAT
OIL
Calgary
Turner Valley
GAS
Bow R.
CATTLE
South Saskatchewan R.
BRITISH COLUMBIA
Redcliffe
Swift Current
Moose Jaw
Medicine Hat
COAL
GAS
Coleman
Lethbridge
Raymond
Cardston
CATTLE
SHEEP
WATERTON GLACIER INTERNATIONAL PEACE PARK
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MONTANA
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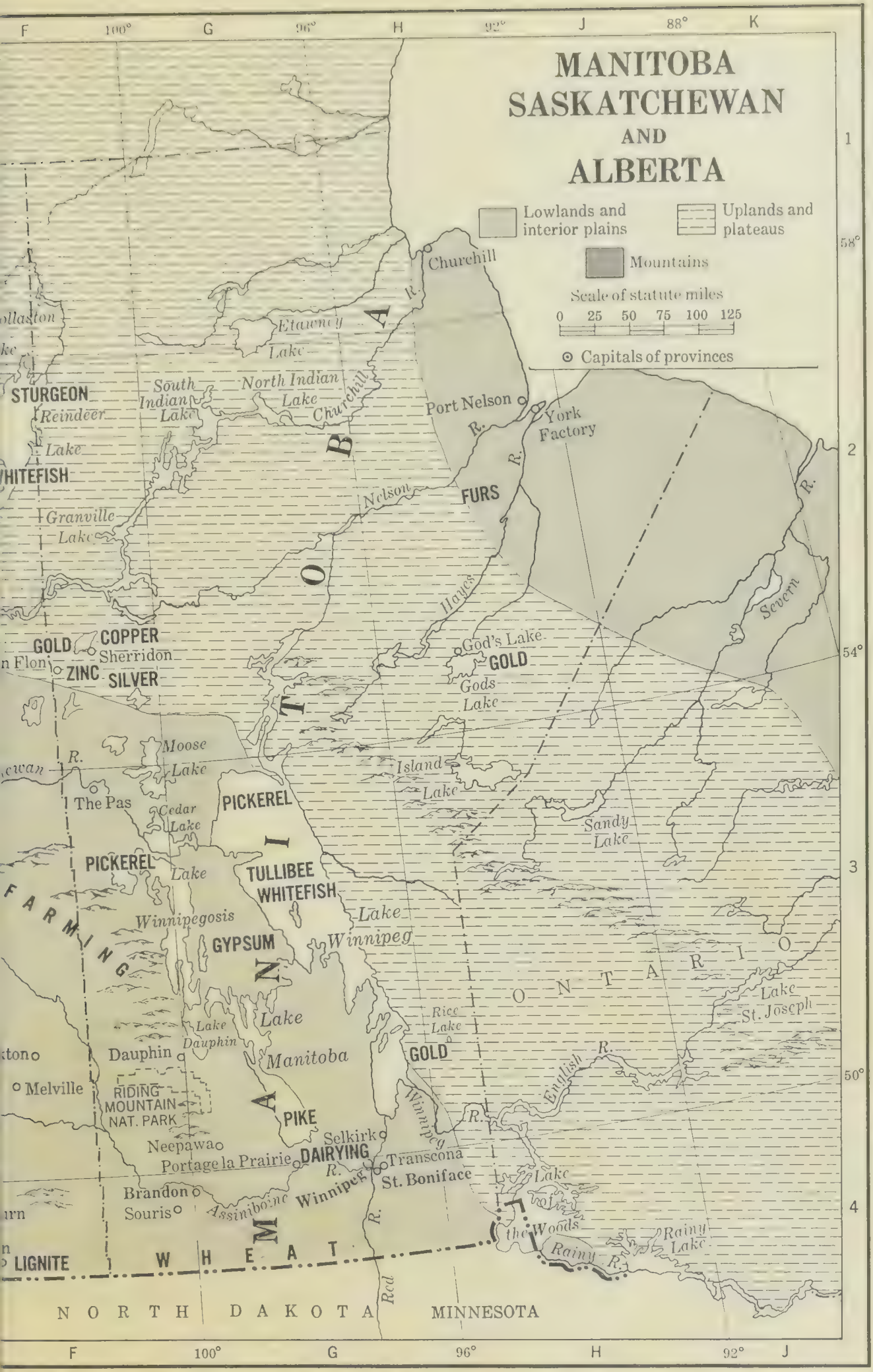
MANITOBA
SASKATCHEWAN
AND
ALBERTA
Lowlands and interior plains
Uplands and plateaus
Mountains
Scale of statute miles
0 25 50 75 100 125
Capitals of provinces
Churchill
Etawney Lake
South Indian Lake
North Indian Lake
Churchill R.
Port Nelson
York Factory
Nelson R.
Hayes R.
Severn R.
STURGEON
Reindeer Lake
WHITEFISH
Granville Lake
FURS
GOLD
COPPER
ZINC
SILVER
Sherridon
God's Lake
Gods Lake
Moose Lake
The Pas
Cedar Lake
PICKEREL
PICKEREL Lake
Island Lake
Sandy Lake
TULLIBEE
WHITEFISH
Lake Winnipegosis
GYPSUM
Lake Winnipeg
Lake Dauphin
Dauphin
Manitoba
Rice Lake
GOLD
Lake of the Woods
Rainy Lake
Rainy R.
English R.
Lake St. Joseph
RIDING MOUNTAIN NAT. PARK
PIKE
Selkirk
Neepawa
Portage la Prairie
DAIRYING
Transcona
St. Boniface
Winnipeg R.
Brandon
Souris
Assiniboine R.
Red R.
LIGNITE
WHEAT
FARMING
MANITOBA
ONTARIO
NORTH DAKOTA
MINNESOTA
F
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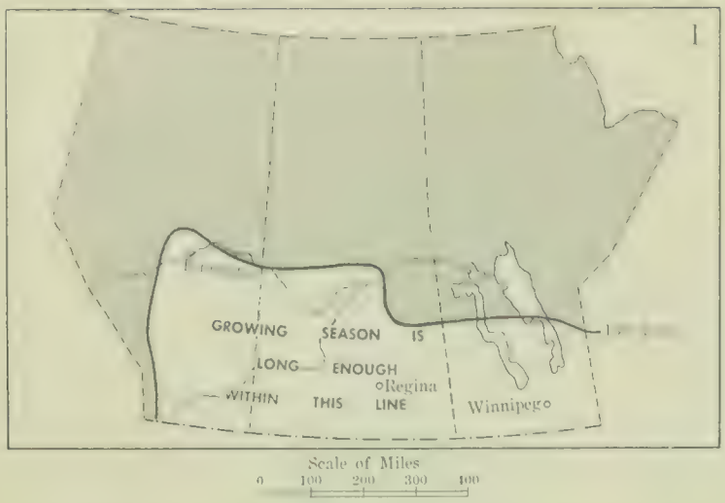
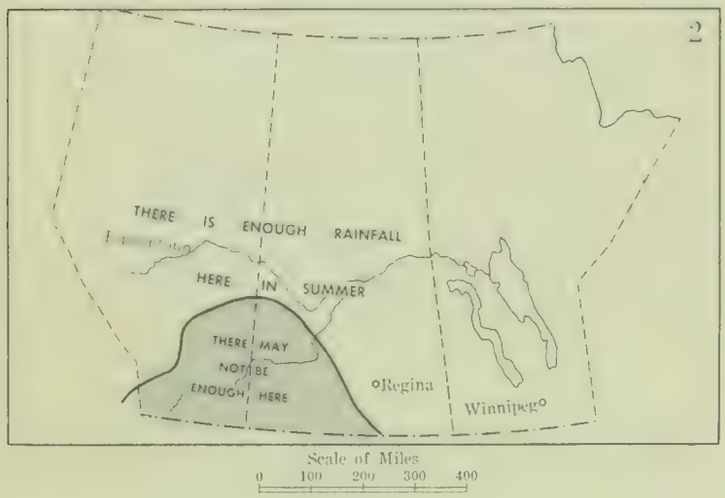
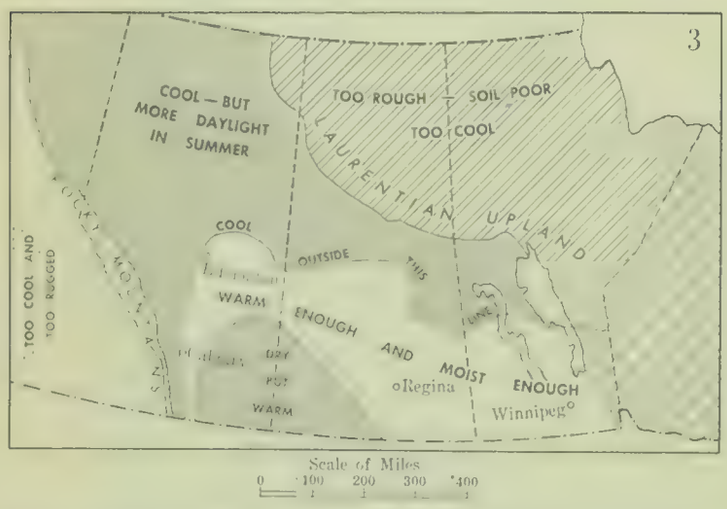






and other grains for sale. Or they make their living by caring for cattle or sheep that live on the grasslands or where crops are grown to feed them. Where such crops and grasses cannot grow, farming cannot be carried on. Then, too, over much of the Prairie Provinces the weather is not warm enough and the summer is not long enough for such farming; in other words, the growing season is too short. On Map 1 above is shown the land in the Prairie Provinces where the growing season is long enough for the raising of most crops. By comparing this map with the population map (page 16), we see that this is also the area with most people. Although some parts of the prairies are warm enough in summer to produce crops, there may be too little rain, and so the plants dry up before they can be harvested. Map 2 shows us the part of the prairies which does not get enough rain for growing crops. We see that this area also is shown on the population map as a region with few people.

Summary · Map 3 brings all our information together in explaining why only part of the Prairie Provinces is settled by many people. It shows that to the west there are rugged mountains; to the north the weather is too cold in summer or the ground is too rough or swampy for people to make a living by farming; and in the southwest farming may be limited by the lack of rain.

THINGS TO DO · **1.** From what you have read, see if you can decide why some of the sloughs in the Prairie Provinces dry up in summer, although lakes in eastern Canada have water in them all the year round.

2. Discuss in class the reasons why farmers in southern Saskatchewan need larger farms than do farmers in the Red River Valley.

3. In your sand table, or in damp sand in a cake pan the bottom of which is painted blue, make a relief map of the three Prairie Provinces showing the three levels, the mountains in Alberta, and the largest lakes and rivers. Use white string laid on the sand to mark the boundaries between the provinces, and red string to show the railway lines. Print the names of the principal cities on small slips of paper. Paste the slips around toothpicks, and stick these into the sand where the cities are found. Notice the relation of cities to the rivers and the railway lines.

4. To carry on farming successfully, without irrigation, about 20 inches of rainfall each year

are needed. The most important rainfall is that which falls in the warm season when the crops can grow. If snow falls during the winter, the melted snow is added to the amount of rain that falls during the warmer part of the year. In general, 10 inches of snow equal 1 inch of rain. The amount of rain plus the amount of melted snow is spoken of as *precipitation*. On the map on page 29 find those parts of the Prairie Provinces which have less than 20 inches of precipitation in a year. How many inches of precipitation are there where you live? Do the farmers near your home have to worry about lack of rainfall? Is the growing season at your home longer than in the northern part of the Prairie Provinces? Now state as clearly as you can how the chances for farming in your locality compare with those in the Prairie Provinces.

MAP STUDIES · Let us study the map on pages 116–117 to see what we can discover about the Prairie Provinces.

1. Trace the southern and western edge of the Laurentian Upland. In which of the Prairie Provinces is there the greatest region of uplands? In which is there the smallest area? This upland is not prairie, of course. It is bare rock, forest, swamp, muskeg, lakes, and rushing rivers, just as it is in Ontario and Quebec.

2. Notice the chain of lakes around the Laurentian Upland. In Manitoba you can see three —one very large lake and two smaller ones. Find their names, write them down, and learn to spell them. The names are of Indian origin. Do the same with the name of the large lake in northern Alberta and Saskatchewan.

3. In which of the Prairie Provinces do you find mountains? In what part of the province are they? Find the name of these mountains.

4. Which of the Prairie Provinces has a salt-water boundary? Find its chief seaport. With a piece of string measure on a globe the distance from this port to Liverpool, England. Do the same for Montreal and Halifax. Which of these ports is nearest England? nearest Winnipeg?

WHEAT–GROWING IN THE PRAIRIES

If you were visiting Europe or some other part of the world and asked what people there knew about Canada, they would probably answer "It produces the best wheat." Almost all the millions of bushels of Canadian wheat being sent overseas each year are grown in the Prairie Provinces. Saskatchewan is by far the greatest wheat province in Canada, and Alberta and Manitoba rank second and third. The high quality of this wheat is known everywhere. Most of the wheat grown in Ontario is sown in the autumn and remains in the ground all winter. The prairie winters are so cold that this cannot be done; so the grain is planted in the spring. This is why our western wheat is called *spring wheat*.

A wheat farmer in the making · Bill Marshall had decided that more than anything else in the world he wanted to settle on the Manitoba prairie and grow wheat. Now none of Bill's relatives had ever been a wheat-grower; and Bill's only visit to a farm was to a vegetable farm one week-end when he was a schoolboy. But a wheat farmer he was sure he wanted to be, and he was eager to learn everything he could about the wheat industry.

Here is the letter that he wrote to his friend Pete Winthrop, describing how he came to visit a wheat farm. Shall we read it?

Brandon, Manitoba,
April 10, 1947.

Dear Pete,

You remember I have often told you that I would like to be a farmer. You are probably wondering if I still have that ambition. I have, and have come here to the wheat country to learn more about it.

First of all, I went to the public library in Brandon and asked the librarian to help me to find some books about farming.

"Books about farming," she smiled. "That's a large order. Are you interested in any special kind of farming?"

I told her that I was interested in WHEAT farming, and that I hoped some day to have a farm of my own near Brandon. She brought me several small books, explaining that in these I could find all sorts of information about wheat and about prairie farms. Settling myself comfortably, I began to read.

In the first book I opened I read: "The best wheat land is made up of sections of black earth which are rich in plant nourishment." Already, then, I had learned one important fact about wheat farming. Encouraged, I read on. Next I discovered that Manitoba's climate is especially well suited to the growing of high-quality wheat.

Growing a little tired of these plain facts, I turned over several pages until I came to a chapter entitled "A History of Wheat Farming in Canada." This was full of surprising and interesting information. For example, did you know, Pete, that the first wheat farmers in Manitoba were the Scottish settlers whom Lord Selkirk brought out to the Red River? They were not very successful because their crops were sometimes destroyed by frost or by swarms of grasshoppers.

In those days a farmer had to work a lot harder than the modern farmer does, and for all his labour he produced much less. He had to walk behind his plough as a team of oxen pulled it over the field, cut his grain with a scythe or sickle, and thresh his wheat by beating it with a special stick, or flail. The people who came later were more fortunate. New types of wheat were introduced, machines to take the place of men's muscles were invented, and railways were built to carry the wheat across the country to other parts of Canada and to the great ports for shipment abroad.

About those new types of wheat—that's an interesting story, Pete. It helps us to understand the part that science plays in wheat farming. In the 1880's Doctor William Saunders and his son Charles came west to establish an Experimental Farm at Brandon. Their job was to experiment with different types of wheat; that is, to try them out in different ways in order to produce a kind which would ripen before the early autumn frosts set in and killed the crops. For twenty-one years—think of that!—they experimented. At last, when they had almost given up hope of success, they produced Marquis wheat—a cross between the only wheat grown in Canada at that time (called "Red Fife") and a wheat from Egypt. The Marquis wheat could be harvested before frosts came, and at the same time it proved to be the finest hard spring wheat in the world.

Speaking of the finest wheat in the world reminds me to tell you that Manitoba holds a special place among the Prairie Provinces in wheat farming. Have you ever wondered why all wheat from Manitoba, Saskatchewan, and Alberta is called "Manitobas," or why the finest hard wheat from all these provinces is called "Manitoba No. 1 hard"? Well, I found the answer at the library. Manitoba was the first province to produce that fine-quality hard wheat which Europeans like so much, and so the wheat was named after the province which first produced it.

As I was leaving the library, the librarian said to me, "Had you thought of paying a visit to a real wheat farm? This is the month when the farmer begins his ploughing and seeding, and you'll be certain to learn a lot. You could ask the farmer questions, too. He'd be glad to help you."

Wasn't that a fine idea, Pete?

Your pal,

Bill

FROM SEEDING TO MARKET

This is what Bill learned about wheat farming when he visited a 2000-acre farm near Brandon.

Preparing the ground · To prepare the ground for the spring seeding, the land is first ploughed. This is hard work, especially when done for the first time. The tough prairie grasses, with their long, tangled roots, are not easily overturned. The picture at the top of this page shows how the work is done. A tractor is used to haul the plough. Sometimes the land can be ploughed in the autumn, but usually it is done as soon as the frost is out of the ground in the spring and the melting snow has drained off the fields. No time is wasted, because wheat needs every possible day in order to ripen before the first frost in the fall. As soon as he sees the first sign of spring, the farmer makes sure that his machinery and tools are in good repair, and then he eagerly awaits the day when he may start his ploughing. At last it is safe to begin, and from dawn to dark, and sometimes after dark, he travels back and forth across the long, level fields.

Sowing the wheat · When the ploughing is done, the farmer goes over the land with a harrow or disk, which breaks up the big, hard clods of soil. Then, at last, seeding can begin. This is done by a machine known as a drill, which drops the seeds in furrows in the soil and covers them with earth. Some farmers now use a machine which harrows and furrows the ground at the same time.

Rain and sunshine · Now the farmer hopes for rain, which is needed to make the seeds begin to grow. When the young green shoots come up, more rain is needed to make the main stalk put out branches, and, later, to make the branches put forth the heads which will hold the kernels of grain. But rain is not all that is needed. Wheat needs heat and

Spring ploughing in a Saskatchewan field with a tractor-drawn plough.

National Film Board Photograph

Breaking up the clods of soil with a disk harrow to prepare the field for seeding.

Sowing the wheat with a seeder. This machine can sow more than 125 acres in a day.

National Film Board Photograph

Courtesy of Canadian National Railways

Harvesting the wheat with a machine which cuts and binds the grain and leaves it in bundles.

long hours of sunshine, and fine dry weather for the harvest. One of the reasons why so much wheat is grown on the prairies is that for the most part weather conditions there are favourable for its growth: a reasonably early spring; enough rain in the spring and early summer; long, bright, sunny summer days; and a dry, sunny fall.

The harvest · When all goes well, the farmer looks out over his acres of ripened golden wheat, which nod as the breeze bends the stalks, and decides it is time to begin the harvesting. Then there is a great deal of work to be done in a hurry. All the help he can find is needed. Sometimes men travel west from Ontario or northwards from the United States to help with the harvesting in the Prairie Provinces.

Machines are used as much as possible. One kind of machine cuts the grain, gathers the stalks into bundles, ties the bundles with twine, cuts off the twine, and throws the bundles off into the field. These bundles are later gathered into *stooks* to dry before they are loaded on to a waggon to be carried to the *threshing machine*. The bundles of grain are pitched into the thresher, which separates the kernels of wheat from the stalks. The grain slides down a chute into waiting waggons or trucks, and the straw is blown out of the thresher into a great stack. See the picture below.

Where the wheat can dry on the stalk before being cut, a *combine* is used. This machine cuts and threshes the grain at the same time, and delivers it into a truck standing by.

On the way to market · To sell his grain, the farmer hauls it by truck to the nearest railway centre. Sometimes he loads the wheat directly into a freight car, but usually he takes it to one of the many grain elevators found at most railway stations throughout

Threshing wheat. At the left is the gasoline engine which furnishes the power.

Courtesy of Canadian National Railways


RALPH I. SHEPHERD

Canadian Pacific Railway Company

Loading grain directly into a freight car at a railway station on the prairies.

the prairies. Here the truck is tipped up by machinery, and the grain runs out on to an endless belt which carries it in pockets to the top of the elevator, where it falls into great bins. From these bins the grain passes through chutes into the freight cars waiting below. From Alberta and parts of western Saskatchewan much of the grain goes by rail to Vancouver and then by boat to Europe by way of the Panama Canal. From the rest of the prairies, most of the wheat travels east. Some of it goes north by train to Churchill on Hudson Bay, and then by boat to Europe.

Loading a freight car from an elevator bin. The grain flows through the hose-like chute.

Courtesy of Canadian National Railways

But this route can be used only for three months during the summer and fall when Hudson Strait is not closed by ice. If you could look down from an aeroplane on eastern Saskatchewan and Manitoba during late September and October, you would see long trains like tiny worms, all making for Winnipeg. It would astonish you to see so many trains, and you would wonder how they could all get into the railway yards at once. Winnipeg is a very busy place during the harvesting season, and after it, too. Let us see if we can find out why all the trains pass through Winnipeg.

All the railways from both west and east have to pass along the narrow strip of land between Lake Manitoba and Lake Winnipeg on the north and Lake of the Woods on the south. Locate these lakes on the map on pages 116–117. Winnipeg is built where the Red River meets the Assiniboine; so railways following these river valleys make Winnipeg an important *railway centre*, with the largest freight yards in Canada. Here the wheat is sampled and graded, and then sent on by train to Fort William or Port Arthur. There it is loaded on to boats to go either to Montreal and the other St. Lawrence ports, or to Buffalo on its way to New York. At Fort William and Port Arthur there are large grain elevators. These serve to transfer the wheat to waiting freighters or to store it for future shipment.

Of course, not all the wheat is exported. At Winnipeg and, in fact, in all the larger cities of the prairies, there are flour mills that grind not only enough flour for the needs of their own people but much to send away. Several cities have factories in which breakfast foods of one kind or another are made. After hearing all this about the importance of Canadian wheat, you will not be surprised to learn that we export more wheat than any other country in the world.

The lands where wheat is grown in Canada. In which province is it grown farthest north?

SOME THINGS TO DO · **1.** On a large sheet of brown paper or cardboard make up an advertisement telling English millers (*a*) why they should buy Canadian wheat; (*b*) where it is grown; (*c*) what time of year they can buy it; (*d*) the city where they can learn the price of Canadian wheat; (*e*) the route the wheat will follow to reach the sea-board; and (*f*) the port from which it will be shipped.

2. Write the story of a grain of wheat from the time that it was growing in Saskatchewan until it was ground into flour in Montreal. Begin in some such way as this: "The first thing that I remember was swaying back and forth on a long, slender stalk. Around me were thousands of other yellow stalks like mine. The sun shone down on me, and I was very happy. I was proud of my beautiful yellow jacket . . ."

3. Ask your teacher to help you to find the story of the clever scientists who worked so long to produce a kind of wheat that would ripen in a short enough time to grow in the Peace River District, and even farther north.

4. Debate this subject: "Resolved that it is better to be a wheat farmer in Saskatchewan than a fruit farmer in the Annapolis Valley."

5. Find out how wheat is ground into flour.

6. From your health book learn the importance of the wheat germ to health.

7. Find out what kinds of breakfast foods are made in the Prairie Provinces, and in what cities they are made.

OTHER KINDS OF FARMING

Other crops · Although wheat is the most important crop on the prairies, it is by no means the only crop grown there. As time goes on, more and more farmers are raising other crops so that they will not be ruined if their wheat crop fails. On the map on this page find where the wheat is grown. Which province has the greatest area in wheat? the smallest? Notice the wheat-growing sections in the Peace River District. This region is far north for wheat, and yet the quality of the wheat grown there is very high. Unfortunately the crop has to be carried a long way to the seaports.

Even in these districts where wheat is the principal crop, other crops, chiefly oats and flax, are grown. You know that flax is the fibre plant from which linen is made. Flax in western Canada is not grown for its fibre, but for its tiny seeds. The seeds are sold to mills where they are crushed to press out the oil. This oil is called *linseed oil* and is used in making paints and varnishes. The meal that remains after the oil is removed from the flaxseed is made into cakes and fed to stock.

Mixed farming · In the mixed-farming region of the Prairie Provinces farming is carried on more as it is in the east, but there are several differences, as you will see. As a rule, farms are larger and more numerous than they are in the eastern provinces, and more space is used for growing grains—oats, some wheat, barley, and rye. Potatoes are grown, but there are fewer other vegetables than in the east. Each farm also has a few horses, cows, pigs, and chickens. The growing season is often too short for fruit to be raised, except in the irrigated districts of southwestern Alberta. Very little corn is raised, and so oats, which are cut while still green, and sunflowers are used instead of corn for *ensilage*. Barley is often fed to the pigs.

The mixed-farming region is mostly on the *parklands*, where trees are found among the grasses, rather than on the real prairie land. In general, this region is about a hundred miles in depth and lies along the North Saskatchewan River. It is a pleasant region, and one less likely to suffer from drought, or lack of rain, but it cannot produce the high-quality wheat of the drier areas.

Ranching · We now understand that farming cannot be carried on everywhere; but even where it is possible, the farmer must be careful to choose a crop that is suited to the soil and the weather. There is a large part of the southwestern section of the Prairie Provinces that is too dry for crops unless extra water is supplied.

Because the rainfall is light here, there are no trees; and the grass, instead of being thick and green, as it is on the prairies, is thin and coarse and is found only in tufts. Where wheat-raising was tried on this dry land, the crops failed, and the ploughed-up soil drifted about and blew away, forcing many farmers to leave their farms. This is good ranch land if too many animals are not kept on it. Great herds of cattle and flocks of sheep roam from place to place, feeding on the thin or tufted grass. In the winter they are usually herded together where they can be fed when the grasses fail, but they are not kept in barns during the winter as are animals in the east.

Sheep-raising on a Saskatchewan ranch · Here is the letter that a little girl called Susan wrote to her friend Jane, describing her visit to a sheep ranch in southern Saskatchewan. We thought you might like to read it.

It was early in May when I arrived at the ranch—a lovely time, because the baby lambs were just being born. Lots of the mother sheep had twins, but often one of the twins died. Mr. Hawkins said, though, that it was better to have one good lamb

Hogs on a farm in the mixed-farming region of Saskatchewan. What do you think they are eating?

than two poor ones, and that he did not think there was enough food left on his range to feed all the lambs if they had lived. He explained that his range had been "overstocked"; that the grasses which grew there had been so thoroughly nibbled by all the animals which had grazed on it that now cactus plants were beginning to grow in their place. Always he had to keep a sharp lookout for these bad weeds.

When the lambs were just old enough to be able to follow their mothers to the pasture, and to play games with one another, it was time for the older sheep to be shorn. A crew

Sheep-shearing time on a Saskatchewan ranch. The sheep are quickly rid of their warm coats.

By Ewing Galloway, N.Y.

Some of the sheep that Susan saw on her visit to the Hawkins ranch.

of men came to our ranch one warm, bright day in June. They had machine clippers, which, Mr. Hawkins said, could do a neater, better job than the old hand shears he used to use. I watched while the men spread clean canvas on the floor of the shed. Then each shearer held an animal in a kind of sitting position, with its head up and turned slightly towards him. With the clippers held in his other hand, he started to remove the fleece from his sheep. First he cut the fleece under the sheep's neck and extended the cut all along the underside of its body. From this opening he went on to shear the animal's head, neck, and legs. Soon the heavy fleece was all off. The sheep ran back to the flock, shaking itself and looking very much smaller without its winter coat.

For several days the shearing continued. More than a thousand of the animals were freed of their fleeces; but the lambs, of course, were not touched. Each fleece was tied separately with twine and put into a large sack. I think each sack held about forty fleeces.

"What becomes of the sheep's coats now, Mr. Hawkins?" I asked.

"They are shipped in carlots to the warehouses at Regina. After that, the wool is graded and sold to manufacturers or sent to the British market."

"And do the manufacturers make the wool into the coats, sweaters, scarves, and mittens that we wear to keep us warm?"

"Yes, after it has been thoroughly washed and dyed and has had a great many things done to it. You'd be surprised at how much work goes into the production of woollen clothing after the wool has been clipped from the sheep's back!"

Right after the shearing the sheep were dipped, to make sure that they would not be troubled by ticks when their wool grew again. The dipping was fun to watch, Jane. All the sheep were made to swim a short distance through a tank, which, Mr. Hawkins said, was filled with a wash that would kill ticks. When the sheep came out, wet and dripping, at the other end of the tank, they were tick-free.

The Hawkinses' ranch does not depend on wool alone to keep it going. In fact, almost twice as much money comes from the sale of the lambs as from the sale of wool. That is why such care is taken to feed the lambs well and to protect them from sickness and danger.

During the whole summer and autumn the lambs grazed with their mothers on the Hawkinses' range—a lovely stretch of unfenced, rolling country in the shade of a few low hills. No grain was grown there, and no cattle grazed over that area. It was "sheep country." Nearly two thousand sheep spread themselves in little flocks over the range. They moved about continually as they searched for juicy wheat grasses to bite off close to the earth with their sharp teeth. One of the Hawkinses' three sheep-dogs helped Tom, the herder, to take care of the sheep.

You cannot imagine a lonelier life than the one that Tom led. He made his home in a waggon, in which he kept a supply of food, and he stayed with the sheep all the time. Even at night he slept in his waggon near the sheep's bed-ground. For weeks and weeks at a time he did not see another human being.

In October Mr. Hawkins sold most of his lambs. I was glad then that my visit was over, because with so many of the lambs gone, the ranch seemed quieter and different. Of course I knew that when spring came round again there would be other lambs. But, as our first snow was falling, spring seemed very far away.

The irrigated lands · Around Lethbridge, near Raymond and Cardston, are lands made useful for agriculture by irrigation. Water is brought from a great artificial lake created in building the Bassano Dam. This work of irrigation in the Prairie Provinces has only been started, but already, in the warm, bright sunshine, crops of alfalfa, potatoes,

Through irrigation ditches such as these near Lethbridge flows the water which has turned land once used for grazing into rich farm land.

National Film Board Photograph

Courtesy of Canadian National Railways

A trainload of coal from a mine in southern Alberta on its way to the tipple.

sugar beets, melons, plums, and crabapples are raised in districts that used to be almost like a desert. Peas and beans are also grown for seed that is sold all over Canada.

Food for the cities · Around the large cities there are dairy farms which provide fresh milk and butter for the city people. Some of the best land is used for market gardening, so that the people of Edmonton, Winnipeg, and other cities may have fresh vegetables and fruits in season.

THINGS TO DO · **1.** Show that you know the meaning of the following terms by using them correctly in sentences.

"Manitoba No. 1 hard"	spring wheat
drill	combine
threshing machine	stooks
parklands	drought

2. Answer these questions:

a. Why is dairying carried on largely near the large towns and cities?

b. What was the cause of the serious dust storms in southern Alberta and Saskatchewan?

c. What is meant by irrigation? Name any other country that you know of where irrigation is carried on.

3. Find out how cattle are cared for on a ranch. What is meant by dipping cattle? branding cattle? the sorting of cattle? What is meant by the "roundup"?

4. Read the story *The Little Knight of X Bar B*, by Mary Maule.

5. Write a story about the life of a cow-boy.

MINING, POWER, AND FOREST RESOURCES

Mineral fuels · We know that the winters on the prairies may be very cold. Yet homes, offices, and factories have to be kept warm. What do the people use for fuel? The first settlers used wood which they cut from around their farms or on the edges of their villages. Sometimes they used peat or turf. Nowadays coal is the main means of providing heat, although cordwood is still an important fuel.

The map on page 132 shows us those parts of the Prairie Provinces where coal is found. The best coal in the prairies is that of southern Alberta, and the people living there are able to get good, cheap fuel. The same map shows us some places where oil and natural gas are to be found. This, too, is mainly in southern Alberta, although there is some in parts of Saskatchewan. There many homes are heated and lighted with gas piped from the wells. There are large areas of the Prairie Provinces without coal, oil, or gas, however. In such areas the people must either use wood or buy fuel that has been shipped from elsewhere. Winnipeg, for example, uses some coal carried all the way from southern Alberta, and other coal brought from even farther away—from the eastern United States. Such fuel is expensive, especially since the cold winters require the use of a great deal of it.

The most recent discovery among the fuel resources of Canada is that of oil, and the most important oil-producing field is in the Turner Valley in Alberta.

Courtesy of Trans-Canada Air Lines

An air view of the Turner Valley oil field. Find a group of oil derricks near the centre of the picture. Find also the tanks used for storing the oil.

The oil that comes from our wells is called petroleum, as you may know. That means "rock oil." In certain types of porous rock the oil collects, just as water does in a sponge. To reach the oil a deep hole is bored from the surface down to the porous rocks. This is a very costly process, and it requires many machines. The oil derricks are steel towers, some of which you will see in the picture above. The drilling operations are carried on directly under these towers. One way of drilling for oil is described here.

The drill which is used for digging an oil well is really a long pipe with sharp cutters fixed to the end which goes into the ground. A machine at the surface is connected to this pipe in order to turn it around and around. The moving of the pipe causes the cutters also to turn and to bite into the rock, cutting a round hole. In this way the drill sinks deeper and deeper. At the surface lengths of pipe are joined to the drill as needed, and thus the steel drill digs hundreds, and finally thousands, of feet beneath the surface. The tall derricks are needed for lifting the heavy lengths of pipe into position exactly over the well.

Wherever there is petroleum there is gas. When a well is drilled, natural gas often comes out first. Oil is the more valuable of the two, but there are also many uses for the gas. For instance, it is brought to Calgary, Edmonton, and other towns in southern Alberta by a pipe line. Wherever they are needed, there are other pipes which branch off and carry the gas to our homes. But most important of all are the pipe lines which carry the precious petroleum to the refinery. There many different kinds of oil, such as gasoline, engine oil, fuel oil, and machine oil, are made from the black crude oil.

Metals · In speaking about mining we should not forget the importance of mining for metals. Such mining can go on only at

The principal mining districts of Canada. Which provinces have no metal resources? Which provinces or territories have no fuel resources?

places where the minerals are already in the ground. Minerals from which metals are obtained are not found in large quantities on the prairies, but in the rugged country to the west and north. The most important metals that have been mined are copper, zinc, and gold. The map on pages 116–117 shows us the names of some of the towns that have been built where mining can be carried on. Find God's Lake, Sherridon, and Flin Flon. Note their relation to the Laurentian Upland.

Mining towns are very busy when the mines are operating, yet we must remember that when all the metals have been taken out of the ground the mining ceases and the towns may be deserted. This has happened in the case of Goldfields, the gold-mining settlement on the shore of Lake Athabaska. However, new mining towns grow up to replace the old ones that die, and there are many thousands of square miles of the northern part of the Prairie Provinces where prospectors have still to search for minerals. Every summer there are hundreds of men testing the rocks for minerals, and government surveyors and airmen making the maps that will help them in their search.

Electric power · Some parts of the prairies are able to warm their homes and obtain light from the power given by falling water. Where there are waterfalls and enough rainfall to keep them running throughout the year, power plants may be built, and the electrical energy from them can be carried over wires to the cities, towns, or villages where it is needed. Some of it is generated in the cities and towns by the use of steam engines or oil engines, but most of it comes from waterfalls either in the Rocky Mountains or along the edge of the rocky uplands to the northeast. The Prairie Provinces are fortunate because they still have vast stores of unused water power waiting to provide cheap electricity when it is needed.

Forests and furs · Are there any other ways in which the northern part of the Prairie Provinces can be useful to us? We know that much of the area is covered by forests. Can you suggest ways in which such forests are useful to man? We think first of all of lumber. Some of the trees may be cut down and floated along the waterways to sawmills, where they can be cut into boards for use in building. Although the trees in this part of

Canada do not make such good lumber as do those we have read of in the east or those that we shall study about in British Columbia, they are very useful. We remember that the prairie farm lands have very few trees and yet require much lumber for building, for fence posts, and for other purposes.

Some of the trees that are not suitable for lumber are cut to give wood for making pulp and paper. This is done in a large mill on the Winnipeg River.

The forests are very useful in still another way, and because of it we must be careful not to cut them down too rapidly. The Indians who lived in the forests in the old days were hunters who made their living by trapping animals for furs and food. Trapping is still important, and there are still many trading posts scattered throughout the northern forest lands.

National Film Board Photograph

Winnipeg's railway yards are the largest in the Dominion and among the largest in the world.

TRANSPORTATION IN THE PRAIRIE PROVINCES

The railways · We know that the railways were originally built to help the farmers to reach their lands and ship out their crops. The railways of today are used for many other purposes.

Operating a railway is a difficult and complicated matter. Have you seen men at work on a locomotive, getting it ready for a long run? The cinders must be raked out so that the fire will make plenty of steam; water and coal must be put into the tenders; and men with grease guns and oil cans swarm over the giant to see that everything runs smoothly. Freight cars, sleepers, and coaches must be built, repaired, and kept clean. The track has to be kept clear and looked after so that it will be a safe road over which the heavy trains can travel hour after hour. Day and night the telegraphs and signals must be working. The colder or stormier the weather, the more carefully they must be operated. There must be places for loading and unloading freight and for passengers to get on and off the trains, and so the railway builders marked out stations every few miles along their tracks; and at every hundred miles or so they built "divisional points" where locomotives could be attended to and train crews could be changed. Some of these railway stations were placed where there had been fur trading posts or other old settlements. For example, Winnipeg became an important railway city where the fur trading post *Fort Garry* had existed before. Edmonton grew up near the site of old *Fort Saskatchewan*. In some cases the railway cities were quite new,—for example, Regina and Saskatoon. Find these cities on the map on page 107, and notice how the railways spread out from them in several directions. Some of the railway cities have now become very large. Winnipeg, for example, has about a third of a million people living in and around it.

Today many dwellers on the prairies earn their livelihood by helping to keep the railways running.

Airways and highways · Although railways are still the most important method of transportation, travel by air is already very important in the Prairie Provinces as in other parts of Canada. It is especially important in those parts of the Provinces which cannot be reached by railways and highways.

You all know what C.P.R. and C.N.R. stand for, because everyone has seen railway cars bearing those letters. You may not know, however, that T.C.A. stands for Trans-Canada Air Lines, and that its aeroplanes fly daily between Halifax and Victoria.

It may be said that our scattered farm communities and cities across Canada came into being as a result of the railways, but it is the T.C.A. that is bringing these same communities and cities closer together. You may wonder how this can be so. The distance between cities has not changed, of course, but the time needed to travel that distance has been greatly changed. Today it takes a plane about two hours to fly from Winnipeg to Regina. The same trip by train takes about nine hours.

Compare the map of the railways of the Prairie Provinces on page 114 with the map of the air routes of Canada on page 109. Notice that what is true of the railways is also true of the air routes. They go out in all directions, and especially to the north, from Winnipeg, and from such cities as Edmonton, Saskatoon, and Regina.

Those air routes going northwards are some of Canada's pioneer airways. Over those routes many tons of freight are flown every year, making Canada a world leader in this type of air transport. Most of this air freight goes to northern mining districts by "flying boxcars." In addition, there are trains which speed the nation's freight, and trucks which carry goods along the highways to every corner of the Provinces.

When we are thinking of transportation routes, we must not forget our many famous

A swimming pool in Banff National Park, in Alberta. Find out what highway leads to this park.

Courtesy of National Parks Bureau, Ottawa

highways. The Trans-Canada Highway runs from the east to Winnipeg, Regina, and Calgary, and on to the mountains. The Pembina Highway is an historic route that follows the Red River north to Winnipeg. And, finally, there are several fine highways which lead the traveller to the Riding Mountain National Park. Located about fifty miles north of Brandon, this area of wooded mountains and clear lakes is very different from the surrounding prairies.

MANUFACTURING IN THE PRAIRIE PROVINCES

In a part of the country that is still thinly populated, one would hardly expect to find much manufacturing. What there is depends on the raw materials produced near by and upon the chief needs of the people.

Flour milling · Most important of the manufacturing industries is flour milling. All the larger cities have mills in which wheat from the prairie farms is milled.

Meat packing · You will not be surprised to hear that meat packing is the second most important manufacturing industry in the Prairie Provinces because you already know that many cattle and sheep are raised on the ranches there.

Once upon a time a boy in a little Alberta village thought that he would like to be a butcher. He, Mr. Hicks, tells a group of pupils and their teacher why he chose butchering, and later meat packing, for an occupation, and then takes them through a packing plant.

"In the little Alberta village where I used to live there was a general store. There, in a great white apron at the meat counter, was my hero—the butcher. With saw and knife close at hand, and with sausage grinder securely fixed, he was a wonder to behold at work. We boys never tired of watching him make a deft cut, saw vigorously, and chop-chop on the sturdy table at his side. Years later I, too, became a butcher. Now, however, I am in charge of this large meat-packing plant in North Edmonton. A packing plant, as you may know, is a place where meat is made ready for market.

"Packing plants are usually located in districts where cattle, pigs, and sheep are raised on the near-by farms and where there are good transportation facilities. As a result, the large packing plants are found in the cities which have grown up in such districts, for here there are many people who want meat. Edmonton is one of these important centres. The many good transportation services which connect it with the surrounding country make it convenient to ship the animals to the packers; and the packers, in turn, are able to send the meat quickly wherever it is needed.

"Animals which provide good meat must have good food. Much of the oats and wheat grown on many farms is fed to the pigs and cattle and thus sold in the form of meat rather than as grain. This is a common practice in the Peace River District, and

The feed pen on an Alberta farm where cattle are fattened before being sent to a packing plant.

National Film Board Photograph

National Film Board Photograph

A packing plant inspector marking a beef carcass to indicate that it satisfies the required standard.

National Film Board Photograph

Federal government graders marking grades of beef in red or blue with their stamping hammers.

therefore pigs are an important part of the farmers' produce there.

"But come with me, and we will watch the work the men are doing in our plant."

Mr. Hicks now led the way as the group of visitors walked from his office to the next building. There were ten of them all together, counting Mr. Hammond, the teacher. The pupils all agreed that this was a good way to learn about their Province, and they were glad that Mr. Hammond had arranged the trip.

"The animals come here from the killing pens," began Mr. Hicks. "These men," he added, nodding towards a group of workers, "are dressing the meat."

"What does that mean?" asked one of the girls.

"It means everything that is done to an animal after it has been killed in order to prepare it for sale in a butcher shop," said Mr. Hicks. "Here, for example," he went on, pointing to one of the operators, "the hide is removed."

Farther along in the building were huge carcasses of beef hanging white and clean, which the visitors later saw being split down the "fin," as the backbone is called. The two halves are known as *sides* of beef, and they look just like the large pieces that butchers have in their refrigerators.

At intervals during the dressing process certain men examined the meat closely.

"Those men," explained Mr. Hicks, "are the inspectors. They play an important part, for they approve for sale only such meat as satisfies a high standard. All the meat that passes these rigid inspections is then graded according to weight and dressing, and finally the familiar red or blue stamp is placed on it to indicate the quality.

"Chilling the fresh sides of beef is the last important part of the work here," continued Mr. Hicks, as he led the party to the doors of the refrigerating room. "Here the newly dressed beef is hung over night. Sheep and lambs are prepared for market in the same way as cattle. Tomorrow the meat will be

moved to this 'holding' cooler, where it will remain until it is sold."

Mr. Hicks opened one of the doors of the cooler, and they followed him into a gleaming fairyland of good things to eat. It was decidedly cold, especially after the warm room. The bright lights sparkled on the frost-covered pipes, and in neat rows hung great sides of delicious-looking beef and lamb, which were almost as white as the frost itself. Everything was spotless and clean, and the floor was covered with smoothly-raked sawdust.

Outside the cooler again, Mr. Hammond had a question.

"What happens to all the little pigs that go to market?" he asked.

"Well," said Mr. Hicks, "pork receives rather different treatment from the meat you have seen so far. Here in the packing house, hogs are cut into hams, shoulders, bacon, and other cuts."

"These hams you mentioned," someone broke in, "are they given that sweet, smoky taste while they are still at the packing house?"

"Yes, indeed," smiled the guide. "Come down to the curing cellar with me and see for yourself."

In the cellar they saw ham and bacon cuts tightly packed in boxes, with salt and sugar between the pieces. This is called dry-curing, and it takes several weeks.

Finally they came to the smoke house, next door to the curing cellar. Here the hams and bacon are given their pleasing colour and flavour. The smoke house was as hot as the cooler had been cool, and just as pleasant. The room was heated by steam radiators, and filling the air was the fragrance from burning sawdust. The smoking process takes about twelve hours.

After reading the story of this interesting visit, we shall no longer think of meat as just a brown wrapped parcel from the butcher shop. Now we know something of the vast amount of clean, careful, clever work that is behind every bite of the meat that we eat.

One of the railways which has helped to make Edmonton an important centre enters the city over this bridge across the North Saskatchewan River. The upper deck of the bridge is for trains and street cars.

Courtesy of Canadian National Railways

Other manufacturing · Tanning and the making of leather goods are other important manufacturing industries in the Provinces. Hides and skins from the cattle and sheep are the raw products of leather manufacturing, as you probably already know, and tanning is the work that is done to the hides and skins to make them into leather. In some of the cities clothing, shoes, and furniture and other household goods are manufactured.

Manufacturing centres · Each of the important railway cities we have read about has also become a manufacturing city. The most important of them is Winnipeg, which supplies goods for many of the small towns throughout the west, partly through large "mail order" companies. At one time goods needed between the Great Lakes and the Pacific Coast were manufactured mainly in Winnipeg or shipped from the east by railway through Winnipeg. For this reason the city has been called a "distributing centre." Today other cities often carry on some of their own manufacturing or import goods from cities in the United States to the south.

One of the many magnificent views to be seen in Banff National Park in the Canadian Rockies.

Courtesy of W. S. Dunlop

The factories, railways, farms, and markets of the Prairie Provinces employ thousands of persons in their offices who help to direct these activities. To assist in this work there are banks, insurance offices, law offices, and trust companies. Most of these have their headquarters in the five large cities—Calgary, Edmonton, Regina, Saskatoon, and Winnipeg, with the last the biggest of them all.

PLAYING IN THE PRAIRIE PROVINCES

Thousands of summer visitors from eastern Canada and from the United States visit the Prairie Provinces each year. They are attracted by the scenery in the mountains or the forests; or they want to fish, swim, or go boating in the rivers and lakes. To help these visitors as well as the local people, some of the places with the best scenery have been set aside as "national parks." Riding Mountain National Park, in Manitoba, and Prince Albert National Park, in Saskatchewan, are well known. Perhaps the most famous of Canada's national parks are Jasper and Banff, at the western edge of the Prairie Provinces within the region of rugged mountains.

WHAT OF TOMORROW?

What is going to happen in the Prairie Provinces in the future? We know that less than one hundred years ago this huge area was almost empty. A few hundred white people lived at scattered trading posts. A few thousand Indians hunted on the grassy plains or in the northern forests. There are almost two and one half million inhabitants in the three provinces; yet most of them live in the far south. Will more millions come from overseas to settle there, filling up the empty land and building new cities?

The Prairie Provinces are now farming lands. We know that farmers can carry on

their work only where the soil is fertile enough for the raising of crops, where the growing season is long enough, and where there is plenty of rain for the growing crops to mature. Can there be more farmers in western Canada? Perhaps the people will be able to live closer together on the farm lands now in use, or it may be that they can push back the northern forests and grow crops where the warm season is now thought to be too short. Since the First World War such new farm lands have been settled in the Peace River country.

Perhaps more people can work at producing furs from the northern forests and from fur farms. In this way some of the empty lands of the north that are shown on the population map on page 16 may be filled up. Where minerals are found, new mining cities may be built.

If new settlers are to find homes in the vast empty northern parts of the Prairie Provinces, they must be able to reach those parts more easily and more quickly. Where new railways and highways cannot be built, aircraft can be used. In the Prairie Provinces of tomorrow the aeroplane will be even more important than it is now. Each little northern settlement may have its landing field, to which planes can bring supplies and from which people can set out to visit the rest of the country. Already Saskatchewan has ambulance planes which bring sick people from lonely settlements to hospitals in the cities.

THINGS TO DO · **1.** In the index find the word "Winnipeg." Then look up all the references to this city. Discuss the reasons why Winnipeg has become a large city. Remember that the chief needs of a large city are:

a. plenty of room to grow;

b. plenty of food near by and good drinking water;

c. raw products near at hand or cheaply brought in;

d. plenty of power either from electrical development or from steam;

e. a good transportation system;

f. plenty of energetic workers.

2. Edmonton has one of the largest airports in Canada. Give as many reasons as you can why Edmonton is a centre of air transport.

3. On page 240 find the population of the five largest cities of the Prairie Provinces. Arrange these in order of size and write them in your notebook. By studying maps and your text and any other books that you can find, discover what has led to the growth of these cities.

4. Imagine that you have been appointed to show to a group of travellers the interesting points of the Prairie Provinces. Where should you take them to see the following things?

a. An important copper mine
b. Alfalfa growing under irrigation
c. An oil-producing field
d. A popular mountain resort
e. Saskatchewan's capital city
f. The greatest railway yards in Canada
g. A salt-water harbour
h. A national park

5. Much machinery is used on the farms and in the mines of the Prairie Provinces. Very little of it is manufactured there. Explain why this is so.

BOOKS TO READ · For more information about the Prairie Provinces:

1. *Story of Our Prairie Provinces*, by JOSEPH M. SCOTT (Dent). This book not only tells you many interesting things about life in these Provinces, but it gives you the story of how coal was made, and shows how oil and gas are found under the ground.

2. *Wheat* (Canadian Social Studies Unit Readers), by DONALDA J. DICKIE (Dent)

3. *Story Book of Wheat*, by MAUD and MISKA PETERSHAM (Winston)

4. *Canadian Neighbours*, by HARRY E. AMOSS (Ryerson)

For teachers:

Social Studies for Canadians, by GEORGE A. CORNISH and SELWYN H. DEWDNEY (Copp). This book has not only a chapter about the Prairie Provinces but also a chapter about the Canadian trapper.

National Film Board Photograph

Between the mountain ranges of British Columbia lie fertile valleys dotted with farms and ranches.

BRITISH COLUMBIA

In our journey across Canada from east to west we have come to British Columbia, the most westerly of all the provinces and in many ways the most remarkable. Its western coast receives the heaviest rainfall in Canada, while a valley of the interior plateau is one of the driest places. British Columbia has the greatest forests and the tallest trees in our country, and yet it has large areas where trees will not grow at all. It has extensive regions where farming is impossible, but in the Peace River District are produced the best wheat and oats in Canada. This fertile area borders the Peace River in both British Columbia and Alberta. Victoria, on Vancouver Island, is known the world over as Canada's evergreen playground, while in many places in the interior of the Province the winters are bitterly cold and heavy snow falls in the mountain areas. As you study the following pages, try to discover what makes British Columbia this land of contrasts.

THE OPENING-UP OF BRITISH COLUMBIA

The early explorers · Look at the map on pages 154–155 and see how the mountain ranges shut the Province off from the rest of Canada. It should not surprise you to learn that the coast was the first part of western Canada to be explored. On his journey around the world in the *Golden Hind*, Sir Francis Drake sailed northwards along the coast of North America in 1579, but turned south just before reaching British Columbia. In 1725 Vitus Bering was sent by Russia on an expedition to discover whether that country was joined to North America. Bering travelled overland from Europe to the east-

ern part of Siberia. There, at the mouth of the Kamchatka River, he built a fleet of ships and in 1728 sailed north along the coast. Passing into the Arctic Ocean through the strait now named after him, he decided that Russia and America were not joined.

In 1741 Bering set out on a second expedition and sailed eastwards, passing just south of the Aleutian Islands without ever seeing them. He finally saw land on the horizon and landed on St. Elias Island, off the coast of Alaska. He had discovered America from the west! Today a huge glacier which meets the sea near this spot is called the Bering Glacier after the explorer. On his return voyage Bering was taken ill and died on Bering Island, near Kamchatka.

By this time the Spaniards had settled on the Pacific Coast of what is now the United States. They became worried at the explorations of the Russians to the north, and in 1774 sent an expedition of their own, headed by Juan Perez, to discover new lands. Perez sailed as far north as the Queen Charlotte Islands, and is said also to have entered Nootka Sound, on the west coast of Vancouver Island. He was thus the discoverer of British Columbia, although he did not land.

You may have read how Captain Cook mapped the St. Lawrence River with General Wolfe. In 1778 this great English captain explored the coast of British Columbia. He was searching for the Northwest Passage —that is, a route by sea between the Atlantic and Pacific—round the north of Canada. Cook sailed north along the coast through Bering Strait to the Arctic Ocean. Here he was forced by ice to turn south. Although Cook did not discover the long-sought-for passage, he did open up trade with the Indians while at Nootka Sound. He received from them thousands of dollars' worth of beautiful sea-otter skins and gave in return various small articles from his ship.

From Provincial Archives, Victoria

Captain George Vancouver, for whom the island and the city of Vancouver were named.

In England there was great excitement about the sea-otter skins which Cook had secured. Spain claimed British Columbia, since it had been discovered by Spanish explorers, and sent out warships to protect her claim. When these Spanish warships reached Nootka, they found there an English officer, Captain James Meares. He had been given a piece of land by an Indian chief and had built a trading post, but the Spaniards arrested him. When the British heard about this they were very angry and nearly went to war with Spain. Matters were settled in a friendly fashion, however, and Spain surrendered her claim to Nootka.

Captain George Vancouver, who as a boy had been on one of Captain Cook's ships, was sent to take charge of the settlement. He left England in 1791 and made the long and dangerous journey around South America. Sailing up the Pacific Coast, he entered Juan de Fuca Strait and sailed around Vancouver Island, which he named after himself. Arriving at Nootka, he was po-

British Columbia Government Travel Bureau, Victoria

A modern motor highway now winds through this canyon which David Thompson first explored.

litely received by the Spanish admiral Don Quadra. Captain Vancouver explored the coast for two years and was the first man to map it accurately.

Fur traders blaze the way · Traders of the famed North-West Company set out to find a land route when the company learned of rich furs to be had along the Pacific Coast. Today a trip overland in a comfortable railway coach is exciting as the train threads its way along the side of deep gorges, plunges into dark tunnels, and crosses high bridges. But imagine what the journey must have been for the men who first made their way through this rugged, unknown country without the help of any maps or guides! Mackenzie was the first to reach the Pacific, and later Fraser and Thompson came by other routes, blazing trails for others to follow. On the map find rivers that bear the names of these three explorers.

Alexander Mackenzie was a young Scottish fur trader who had been sent by the North-West Company to a lonely trading post on Lake Athabaska. But he was not content to sit still in his trading post all day long. He wanted to travel, to explore new territory. One summer he set out for the Pacific Coast, but reached the Arctic instead.

Later, Mackenzie decided to try to reach the Pacific Coast by another route. In the spring of 1793 he set out up the Peace River with nine companions in a heavily loaded canoe, which was twenty-five feet long and nearly five feet wide in the middle. On their dangerous journey they overcame all sorts of difficulties, including one portage of nine miles which took them three days. When you consider the size of the canoe and the fact that they had a load of nearly three tons, you can understand just what this portage meant. Finally, after six weeks, they reached the Great Divide, from where the Peace River flows eastwards to Lake Athabaska. Here they met Indians who told them of the Bella Coola River, which flows from the Great Divide westwards to the Pacific Ocean. After great hardships they reached that river and paddled for two days down it to the Pacific Coast. Mackenzie's dream was realized. He had reached the Pacific overland. Captain Vancouver was exploring the coast at about the same time, but he and Mackenzie did not meet.

Once Mackenzie had blazed a trail over the mountains, the North-West Company sent other men into the country to establish new trading posts. One of these was Simon Fraser. In 1808 he set out with four canoes from Fort George, and after a perilous trip of forty days reached the ocean near where today is the city of New Westminster. The great river down which he travelled is called the Fraser River.

The picture opposite is adapted from a painting "Simon Fraser descending Fraser Canyon," by John Innes, copyrighted by the Hudson's Bay Company.

Courtesy of Canadian National Railways

Because of its great height, Mount Robson is snow-capped all the year round.

The Thompson River, which flows into the Fraser, is named after David Thompson, another trader of the North-West Company. Many of the western mountain passes were discovered by him, but perhaps his greatest work was the exploration of the Columbia River, which flows south between the Selkirks and the Rockies to reach the ocean south of British Columbia. He is also famous because of the accurate maps he made of his many journeys.

The gold-rush period · Gold on the Fraser, gold in the Cariboo! The news of the discovery of gold in British Columbia in the eighteen sixties spread quickly. Neither the high mountains nor the rushing rivers of the little known Northwest stopped the men as they came from all parts of the continent in their eagerness for gold. British Columbia soon became a well-known part of the world.

British Columbia became a province of Canada in 1871 after the Federal Government had agreed to build a railway to link it with eastern Canada. Many people were sure that the "sea of mountains" would mean failure in any attempt to build a railway across the Province, but men of courage succeeded in finishing the task in 1885.

A BOOK OF EXPLORERS · Plan to make a book telling stories about some of the explorers of the Pacific Coast. Divide the class into groups. One group may make a map of British Columbia. Other groups may each select an explorer and find out as much as they can about him and write his story. Then the map group may mark on the map the routes of the various explorers, using a different colour of crayon for each. They may also mark the names of the places mentioned in the stories.

You will find more information about these explorers in such books as:

Pages from Canada's History, by D. J. Dickie and Helen Palk (Dent)

Real Stories of the Geography Makers, by John T. Faris (Ginn)

Builders of the West, by Frederick W. Howay (Ryerson)

World Explorers, by Arthur C. Perry and G. A. Price (Nelson)

Mackenzie and His Voyageurs, by Arthur P. Woollacott (Dent)

FROM THE ROCKIES TO THE PACIFIC

The best way to learn about British Columbia is to travel the Trans-Canada Highway. Let us start from Calgary, Alberta, and pass through the towering snow-capped mountains of the Rockies by way of Kicking Horse Pass. These mountains, which extend from the north to the south of the Province, form on the whole the highest range in Canada. Mount Robson, the highest peak, rises to a height of about 13,000 feet.

The Rocky Mountain Trench · On the western side of the Rocky Mountains we follow a deep, narrow valley called the Rocky Moun-

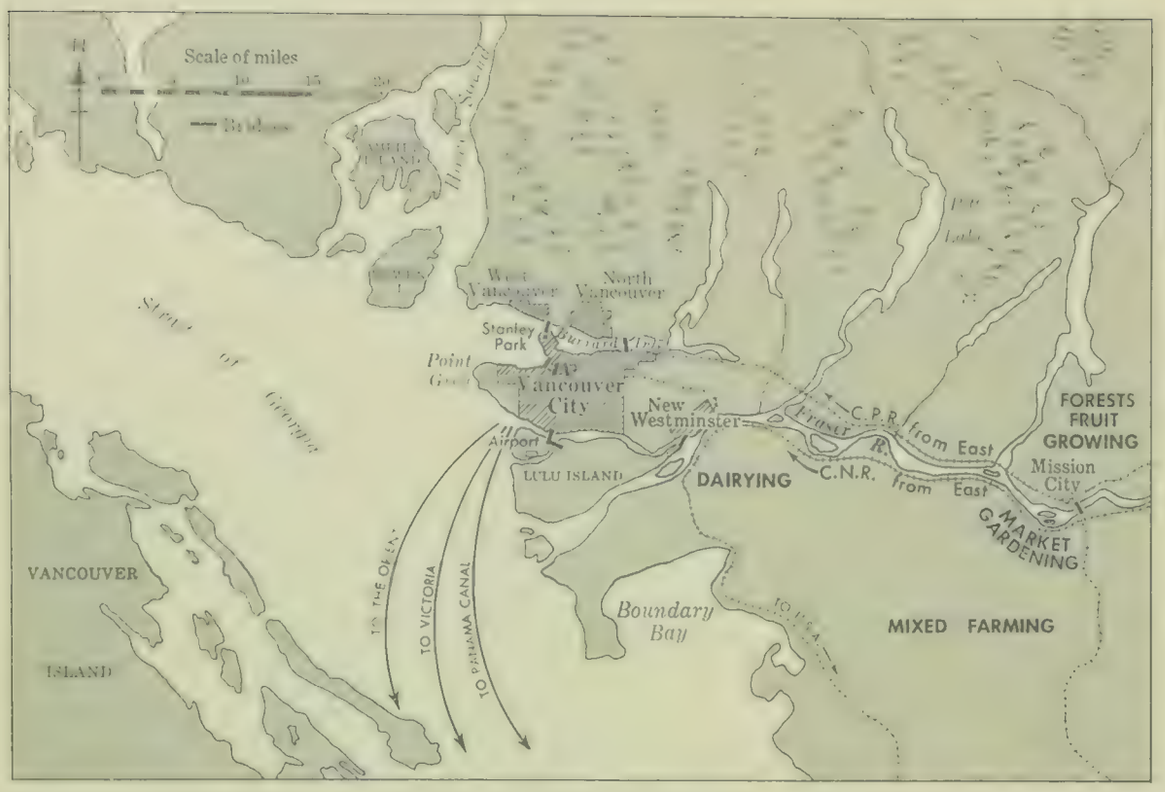
The Okanagan Valley is one of Canada's famous fruit districts. What others can you name?

tain Trench. In this trench rise rivers the waters of which drain into both the Pacific Ocean and the Arctic Ocean. The Kootenay and Canoe rivers join to form the Columbia, which flows southwards into the United States. The Parsnip and the Finlay form the Peace River, which drains into Lake Athabaska. Still farther north streams flow into the Liard River, which empties into the Mackenzie. Look at the map on pages 154–155 and see if you can find these rivers in the Rocky Mountain Trench.

The Plateau Region · The highway follows the south bank of the Kootenay River as we skirt the Selkirk Mountains. These are not so high as the Rockies, but they have many lofty and beautiful peaks. We are surprised to learn that the region from the Selkirk Mountains west to the Coast Range was long ago the bed of a large lake or inland sea. The map on pages 154–155 will give you some idea of this great area. In the southern part of British Columbia this area is divided by a number of long, narrow valleys. In these valleys lie numerous lakes and rivers, the best-known of which are the Kootenay, Arrow, and Okanagan. On both sides of these are upper and lower terraces where we see livestock grazing and farming activity. As we follow the highway north along Okanagan Lake, we see many fine orchards. Soon we are following the Thompson River,

Towering mountains form a background for this peaceful farm scene in the Fraser River Valley.

National Film Board Photograph



The city of Vancouver and its surroundings. How do they compare with those of Montreal (see map on page 75)?

and later the Fraser. The drive along the Fraser Canyon is one never to be forgotten as we make our way through the last barrier of mountains.

The last barrier · Before we reach the Pacific Ocean we pass through the Coast Range. These mountains form the western coast of British Columbia, and are highest in the southern part. Mount Waddington, which is shown on the map, reaches a height of over 13,000 feet.

Vancouver · Vancouver is a western *terminus*, or end, of the Canadian National Railways, and also of the Canadian Pacific Railway. It is a city of many fine buildings and beautiful parks. On a point of land looking over the Strait of Georgia towards the Pacific is the University of British Columbia.

Downtown Vancouver. As the map above shows you, the city is situated on a peninsula between Burrard Inlet, part of which may be seen in the picture, and a branch of the Fraser River.

British Columbia Government Travel Bureau, Victoria

Courtesy of Canadian National Railways

A view of Victoria and its harbour from the air. At the wharf near the centre of the picture are steamers which connect with Vancouver.

Vancouver is less than seventy years old, but it has grown rapidly and ranks third among the cities of Canada. It owes its growth chiefly to its mild climate, its fine harbour, and its position as a terminus of two transcontinental railway lines. An additional reason for its growth is the water route to eastern Canada and Europe by way of the Panama Canal. As you know, the Great Lakes and St. Lawrence waterway is ice-bound for several months each year, while Vancouver harbour is open all year round. Because of this, some of the grain from Alberta and western Saskatchewan is shipped westwards. So much cheaper is water transport than rail transport that, in spite of the costly haul over the mountains and the great distance to Europe, it is cheaper to ship the grain through Vancouver than to send it east by Montreal. Until the Panama Canal was built, such shipping to reach European markets was impossible. Now we can see boats being loaded with grain from the prairies, as well as with lumber, newsprint, minerals, canned fish, and fruits from British Columbia, to go to England and European countries by the Panama Canal and the Atlantic Ocean. Other ships are going across the Pacific to various parts of Asia. To handle this very important trade there are large grain elevators and lumber yards at the port. You will remember how manufacturing grew up around other great ports. Here, too, we find factories and busy industrial plants. There are sugar and oil refineries and lumber mills, and factories in which broom handles, barrels, boxes, doors, and other wood products are made.

Victoria and Esquimalt · Crossing the Strait of Georgia, we visit Victoria and Esquimalt on

Courtesy of Canadian National Railways

The docks at Prince Rupert. You can see how easily ships and trains can exchange goods here.

Vancouver Island. Although much smaller than Vancouver, Victoria is the capital of the Province. It was at one time a trading post, built by James Douglas. In 1845 it was named in honour of Queen Victoria. It is a beautiful city, with many fine homes and lovely gardens and lawns. Victoria has well been called "the city of roses," because it has the finest climate in Canada for growing these flowers. The winters are never very cold, and the summers are never very warm. Although not important as a manufacturing centre, the city has sawmills, shingle mills, and wood-working plants. Like Vancouver, it has a fine harbour.

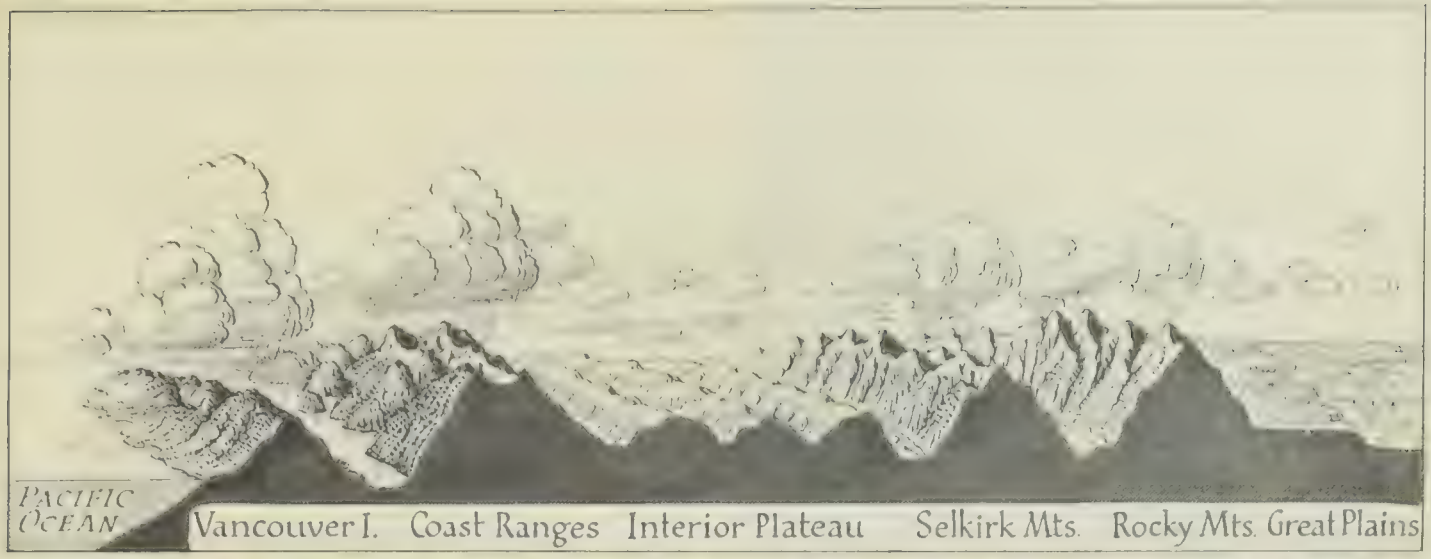
Esquimalt is the western headquarters for the Royal Canadian Navy, and has large dry docks which will accommodate the largest ocean-going ships.

During the fishing season Prince Rupert harbour is crowded with the boats of the fishing fleet.

Courtesy of Canadian National Railways

Along the coast · From Vancouver we go by boat along the coast northwards to Prince Rupert. Our trip takes us along the Inside Passage, which is much used by fishing boats and coastal steamers. The Inside Passage, we discover, is a long stretch of quiet water between the mainland and a fringe of islands which are the tops of a chain of sunken mountains. On the mainland side a heavily forested mountain wall rises steeply from the blue water. This coastal wall is broken at numerous intervals by deep valleys. In past ages rivers flowed through these to the ocean. Then the whole coast area sank gradually, and the ocean waters flowed into the river mouths, deepening them at first and finally filling the whole valley many miles inland. These deep inlets and sounds, as they are now called, form many excellent harbours. From our steamer we get a good view of the steep forested slopes, and now and then we get a glimpse of little settlements along the shore. Some of these are canning centres like the one at Alert Bay. At Ocean Falls we see a large pulp and paper mill.

Prince Rupert · Our journey ends when we dock at Prince Rupert, at the mouth of the Skeena River. If we are fortunate, we may see the fishing fleet in the harbour. Prince Rupert is a city of some 7000 people, and its



A profile, or cross section, of the land forms of British Columbia from west to east. A study of it will help you to understand the relation between climate and land forms.

port is a busy place, with its dry docks, grain elevators, and large cold storage plant. There is also a fish reduction plant, where we can watch the halibut liver oil being extracted and the fish meal being ground from what remains of the fish. The city was built at the western terminus of the Canadian National Railways, and it is also the beginning of the shortest sea route between Canada and Asia.

MAP EXERCISE · On a blank map of British Columbia, show the chief mountain ranges by shading. Print in the names of the ranges. In their proper places print the names "Vancouver Island" and "Rocky Mountain Trench" and the names of the chief rivers. Mark in blue the main lines of the Canadian Pacific Railway, and in red the main lines of the Canadian National Railways. Print in the names of the three passes through which these railways cross the Rockies, and the names of the two chief ports, Vancouver and Prince Rupert. You will need to refer to the map on pages 154–155 and to the railway map on page 107 as you do this work.

On your sand table build a model of British Columbia. Look carefully at your map as you work. Dig out the river valleys with a pencil. Use coloured string to show the railway lines. From a railway guide perhaps you can learn where the tunnels are and run the string through the mountains at these points. Use tiny green twigs for trees to show the great forests of British Columbia. Now, following along on your map and model, re-read the story of Mackenzie, Fraser, and Thompson, and see how much more exciting it seems to you. Have you found the Bella Coola River, where Mackenzie came out to the Pacific Ocean?

CLIMATE AND VEGETATION

How does the climate combine with the land forms about which we have just learned to make British Columbia a land of contrasts?

Since British Columbia lies within the belt of the prevailing westerlies, the winds blow from the Pacific Ocean towards its mountainous coast. How does this affect the climate? On this page is a profile of British Columbia from the west coast to the eastern boundary. Refer to it for each part of your study on climate in the Province.

Oceanic climate of the coast · You will remember from your study of the Annapolis Valley that water heats and cools less quickly than land. The westerly winds blowing from the Pacific Ocean, which is cooler than the

Caterpillar Tractor Company

Thick growths of conifers such as this are typical of the west coast of British Columbia.

land in summer and warmer in winter, give the coast of British Columbia its delightfully moderate climate, with mild winter weather and cool summer weather.

As the westerly winds blow in from the ocean, they bring warm, moist air, which is forced to rise on meeting the western slopes of the mountains. The rising air is cooled, and as a result clouds form and heavy rain falls. In the higher altitudes this moisture often falls as snow, and many mountain peaks are snow-clad all year round. Although rain falls at nearly all times of the year, it is heaviest in the winter. The rainfall of some places on the western slopes of Vancouver Island is over 200 inches in a year—the heaviest in North America. Because of this heavy rainfall, the forests of the west coast of British Columbia are dense. The trees grow straight and tall. What is the yearly amount of rainfall where you live? Ask your teacher to explain what is meant by 200 inches of rain, and how rainfall is measured by a rain gauge.

The interior zone · The westerly winds, which have lost most of their moisture, now move down the eastern slopes of the Coast Range. At lower levels this dry air becomes warmed again and takes up moisture from the region over which it blows. This means that the air over the great interior zone is dry and that little rain falls—in some places only 8 or 10 inches in a whole year. On these eastern slopes trees are few, and in the dry interior there are almost no trees. When air lacks moisture, the sun shines through it easily, making the summer days very hot, and the sky is usually clear and bright. As soon as the sun goes down, the air becomes cold, because dry air allows the heat from the earth to escape through it. In winter, on the other hand, when there is little heat from the sun, both the days and nights are cold. The clear skies and dry air, and the hot summers and cold winters of this interior zone, are very different from the moist air and the temperate summer and winter climate of the Pacific Coast.

As the winds moving eastwards reach the west slopes of the Selkirks, they are forced up again and become chilled, and rain falls. There is not so much rain as along the coast, but it is enough for the growth of large trees.

A winter scene on a hillside in southwestern Alberta before the arrival of a chinook.

Courtesy of Canadian National Railways

In the deep trench between the Selkirks and the Rockies rainfall again is light, but on the west slopes of the Rockies themselves it is heavier, and so these slopes are covered with forests. By this time most of the moisture in the air has been driven out as rain or snow, and the air slides down over the eastern slopes of the Rockies, becoming warmer and drier as it goes. The Prairies is an area of even colder winters than those of the interior zone of British Columbia. As a result, the cold prairie air east of the Rockies acts as a blanket over which the warmer west wind passes. Thus, as a rule, this region is not affected by the prevailing westerly winds. Under certain conditions, however, the winds from British Columbia are able to replace the usual cold air blanket with a resulting warm spell. The warm west wind which brings this sudden change is known as the "chinook," and affects most of southern Alberta. See the picture on page 150 and the one on this page showing the effects of a chinook. Such winds are sometimes called "snow-eaters." Why is this a good name for them?

After the chinook. The trail in the centre was packed too hard for a single chinook to melt.

Courtesy of Canadian National Railways

Caterpillar Tractor Company

Moving fir logs by tractor from the forest to a road where they can be loaded on trucks.

LUMBERING

"By Land and Sea We Prosper," the motto of the city of Vancouver, tells of the two great resources of British Columbia—forests from the land and fish from the sea. The Province leads all Canada in these two industries, but from the mines and farms of the land comes more wealth to British Columbia.

You will know at once that lumbering is an important industry, since you have learned that British Columbia has the heavy rainfall necessary for the growth of large trees. In fact, British Columbia leads all the provinces in the amount of sawn lumber produced.

Giant trees of the Northwest · The most famous tree of the west coast is the great Douglas fir, which often grows to be from 2 to 6 feet through and from 150 to 250 feet high. Its wood is prized for masts of ships, for heavy timber, and for wharves. Other trees are important, too. There is the red cedar, which is used largely for shingles and for building canoes and other boats; the Sitka spruce, which makes fine lumber and is valuable for aeroplanes because of its light

Courtesy of Canadian National Railways

Loading logs on railway flatcars, which will carry them to a sawmill.

weight; and the hemlock, which makes sturdy lumber for construction work.

Life in a lumber camp · Thirty years ago life in a lumber camp was not pleasant. The loggers lived in rough and dirty shacks, and they could not take their families with them. Today a change is taking place. Living conditions have improved tremendously. Homes are being built where loggers may live with their families. For the children schools and playgrounds are being provided.

Nevertheless, life in a lumber camp is still hard. Around six o'clock in the morning the loggers are wakened by a blast of a steam whistle. After they have washed, they dress themselves in their working clothes, pulling high boots on over their heavy woollen socks. After a hearty breakfast they ride on trucks or a railway car as far as possible, and then trudge into the woods where the day's cutting is to be done. Around four-thirty in the afternoon they stop work for the day, and they reach camp about six to spend a quiet evening with their families or perhaps see a movie in the community hall.

The improved living conditions have made the loggers much more contented and more ready to stay on the job. This, together with the use of power saws and other machinery, has increased the number of logs that a man can cut each day, which, in turn, allows the loggers to earn higher wages.

From the forest to the mill · Lumbering in British Columbia is carried on in a way quite different from that used in eastern Canada. The trees are much larger, and lack of snow makes it difficult to move the logs. Then, too, the swift-flowing streams of British Columbia are not suitable for floating logs down them.

Getting logs down the side of a mountain by the sky-line method.

National Film Board Photograph

Rolls of newsprint ready to be shipped out from the paper mill at Ocean Falls.

British Columbia Government Travel Bureau, Victoria

In British Columbia the logs are cut with the help of power saws. Then they have to be moved to a mill. Sometimes they are hauled out of the forests by a tractor. In other cases they are dragged over the ground by means of a steel cable attached to an engine. A newer method is to use a *sky-line*, which is a sort of aerial railway formed by stretching a cable between the tops of two trees several hundred yards apart.

By one means or another the logs are hauled to a road or railway. Here they are loaded on to trucks or railway cars. If the mill is some distance away the logs are often taken to tidewater, since it is much cheaper to move logs by water than by road or rail. At tidewater the logs are held together in rafts or *booms* which are towed to the mill by tugs.

Lumber, pulp, and paper · There are many busy sawmills along the coast where machines cut, saw, trim, and plane the great logs to make them into lumber. New Westminster, near the mouth of the Fraser River, is an important lumbering centre. Its factories turn out many kinds of wood products —handles, spools, and musical instruments. The smaller trees go to the pulp and paper mills—to Powell River and Ocean Falls, for instance, which are "company" towns where there are large paper mills.

A LIST TO MAKE · Make a list of the ways in which lumbering in British Columbia differs from lumbering in eastern Canada.

A true story · Anyone could tell that Tom Davidson was not paying attention. He was gazing out of the open window as Miss McLeod was explaining the many different uses of fir and cedar trees. This was surprising, because Tom was usually most interested when there was something real to see, like the piece of new fir flooring and the cedar shingles that Miss McLeod had brought to class. Finally the teacher spoke to Tom.

Caterpillar Tractor Company

In this British Columbia sawmill, fir, hemlock, cedar, and pine logs are made into lumber.

"Is something troubling you?" she asked.

"Yes," said Tom. "I was just thinking that right here in this town in British Columbia we have a large sawmill, and all we know about it is that it makes a lot of noise and smoke."

"That may be true," said Miss McLeod, "but what do you suggest that we do?"

"Well," answered Tom, "I would like to see what happens when the saws shriek and the cloud of steam comes hissing out of the pipe in the roof of the mill."

Nick Pasha raised his hand excitedly and at the same time said, "That is easily seen. My father works at the mill, and I often go down there to visit him. It would be fun to have the others come with me today."

"We cannot all go with you, Nick," replied Miss McLeod. "Since this was Tom's suggestion, you two boys go together, and tomorrow you can tell the rest of us about the sawmill."

Tom was delighted at the thought and quickly fell in with Nick's plan to visit the


A
136°
B
132°
C
128°
D
124°
E
120°
F
116°
G
112°
1
60°
2
56°
Yukon R.
Lower Post
Pelly R.
Liard R.
Mackenzie R.
Great Slave Lake
Slave R.
Trout Lake
Hay R.
Hay Lake
Peace R.
Lesser Slave Lake
Chilkoot Pass
Atlin Lake
Mt. Fairweather 15,237 Ft.
Liard R.
Fort Nelson R.
Stikine R.
Finlay R.
Chatham Str.
PR. OF WALES I.
COPPER
GOLD
SILVER
Skeena R.
Parsnip R.
PEACE RIVER BLOCK
Peace R.
Lesser Slave Lake
KOOTENAY
CASSIAR MTS.
COAST RANGE
HEIGHT OF ROCKY MOUNTAINS
PACIFIC OCEAN
YUKON
BRITISH COLUMBIA
MACKENZIE DISTRICT
ALBERTA


BRITISH COLUMBIA
Scale of statute miles
0 50 100 150 200 250
Capital of province
Lowlands and interior plains
Uplands and plateaus
Mountains
N
S
W
E
OCEAN
COAST RANGE
COLUMBIA MTS.
ROCKY MOUNTAIN TRENCH
CANADIAN ROCKIES
Prince Rupert
Queen Charlotte Islands
Queen Charlotte Sound
Queen Charlotte Str.
Hecate Str.
Dixon Entrance
Graham I.
Moresby I.
Ocean Falls
Bella Coola
Francois Lake
Prince George
Fraser R.
Thompson R.
Columbia R.
Mt. Robson 12,972 FT.
Mt. Waddington 13,260 FT.
Yellowhead Pass
Kamloops
Revelstoke
Glacier Park
Yoho Park
Kootenay Park
Mt. Rev. Elstoke Park
Kicking Horse Pass
Banff
Okanagan Lake
Vernon
Kelowna
Penticton
Nelson
Trail
Rossland
Chilliwack
Mt. Baker
Powell River
Garibaldi Park
Zeballos
Cumberland
Comox
Georgia Str.
Vancouver
N. Vancouver
New Westminster
Port Alberni
Nanaimo
Barkley Sd.
Esquimalt
Victoria
Juan de Fuca Str.
Cape Flattery
Columbia R.
WASH.
IDAHO
MONT.
PULPWOOD
SALMON
HALIBUT
HERRING
LUMBER
COAL
GOLD
COPPER
RANCHING
FARMING
FRUIT
GYPSUM
LEAD
ZINC
SILVER
DAIRYING
52°
48°
132°
128°
124°
120°
B
C
D
E
F

mill at the noon hour. That very afternoon the two boys came to school carrying several pieces of wood of different shapes and sizes. The other members of the class asked Tom and Nick so many questions that the teacher let the two boys tell their story as soon as the class was settled.

"It is not quite right to say that we visited a sawmill," began Tom, "because the saw is just one of many machines used there. Most of the noise that we hear from the mill, though, is made by the big saw and by the planer, which smooths the lumber after it is cut."

"As we entered the company property," said Nick, "there were signs everywhere which read NO SMOKING, BY ORDER. There is not much danger of fire today, with everything still wet from yesterday's rain, but in dry weather, and especially in summer, fire could start easily. Remember when the mill across the inlet burned down last year? That is some story!"

"There is a boom of logs partly on the beach, but most of the logs are floating in the water beside the mill. The boom would about cover our school yard. There is also a strong, sloping bridge leading up from where the logs are in the water to the mill on the shore. We saw a man on the logs pushing them into position so that they could be pulled end first up the slope. As each log came dripping from the water, we could see that many of them were about three feet through.

"When each log reached the mill, it slid on to a carriage which then moved forward against the spinning blade of a great circular saw. Belts and pulleys seemed to be everywhere, and there was a steady hum and whine of motors. But above all this there was an almost deafening shriek as the saw ripped its way from one end of the log to the other. The long log was then pulled back on the carriage and laid on its flattened side. Again the machinery brought it end first against the saw, and again the saw cut a long, rounded slab. This was repeated a third and a fourth time, until finally the log was made into a square beam. Sometimes these are used for building purposes, but today boards were being cut from the beam. Some of the beams were ripped into two-inch thicknesses, but most of them were cut into one-inch boards. The slab strips that had been removed were further trimmed to make thin strips of wood called lath."

"Here are some pieces of lath-slab that were given to us to show you," added Nick.

"After watching the saw," continued Tom, "we went to the next building to see the boards being planed. You can see the marks of the saw on the rough, unplaned pieces of wood. The planer shaves off these marks, and this bit of finished lumber shows you how smooth the wood becomes.

"Outdoors again, we saw the boards being sorted and piled to dry. Great care is taken to leave air spaces between the boards so that the lumber will dry out, or become seasoned. The piles are made the size and shape of a little shack. Each one is about one quarter the size of our classroom and as high as the ceiling.

"Some of the slabs, bark, and shavings are used at the mill to heat boilers which make steam. This steam is used to drive the saws. The sawdust, slabs, and other cuttings that remain are sold for fuel to heat our homes. At last I have found out what happens inside the sawmill and why we see clouds of steam from the outside," finished Tom.

FISHING

In most years the value of fish caught in British Columbia is almost twice the value of the fish caught in Nova Scotia. Think how important are the fisheries of the Maritime

Provinces, and you will have a good idea of the greater importance of this industry in British Columbia. The waters of the west coast have cod, herring, and mackerel, but it is for salmon and halibut that they are famous.

Salmon · The life of the salmon is very strange. The baby salmon, or fingerlings, hatch from eggs laid in the quiet waters of a pool far inland. When it is still very young, the salmon swims down the river and heads for the open ocean. After living in the ocean for three or four years, until it is full-grown, the salmon returns to the same river and to the very same pool where it was hatched. No one knows how each salmon finds the right river among all the many rivers which enter the ocean. Not only does it find its river, however, but it swims upstream, fighting its way against strong currents and leaping over high falls, to the pool where the mother salmon lays her eggs. Soon afterwards she and her mate die, for their life work has been finished.

Many of the salmon are caught in nets as they are moving upstream to lay their eggs. Others are caught in the ocean and near the mouths of the rivers. Canada has laws to protect the salmon and to regulate the taking of them in its waters so that this great natural resource will not be destroyed.

There are many kinds of salmon of varying sizes and shades of colour, but all are very good to eat. As soon as possible after the salmon are caught, they are taken to one of the many canneries along the rivers or at the coast. The cannery, which stood idle in fall and winter, begins to hum with activity in early summer when a ship arrives with cans and workmen. At the end of the summer the ship leaves with its cargo of canned salmon. If we visit a cannery, we can watch workers cleaning and washing the fish. Other workers must cut up the salmon and put it in cans.

Provincial Fisheries Department, Victoria

Unloading a catch of salmon at a cannery.

British Columbia Government Travel Bureau, Victoria

Salting and packing the salmon in cans.

Removing the cans from the retort in which they have been steamed.

Provincial Fisheries Department, Victoria

National Film Board Photograph

Loading a scow with coal from the Nanaimo mines for use in Vancouver and other mainland cities.

After this, the salmon is steamed in the cans, and the cans have several inspections. Any cans which are not perfectly air-tight are put aside. Labels are placed on the cans, and they are packed to be sent to countries all over the world.

Halibut · The halibut is a peculiar fish. A young halibut looks much like an ordinary fish, but as it grows older it becomes wide and flat and its left eye gradually moves over to the right side of its head close to the other eye. The right side of the fish is a greyish-black, but the left side becomes almost white. The halibut is much larger than the salmon; in fact, it is not uncommon for one weighing two hundred pounds to be caught. These fish live on the floor of the sea some distance from land, and they must be caught with a hook and a long line. The fishing is done with trawls, much as the cod fishing of Nova Scotia is done.

Herring · Herring are largely used for bait. Pilchards, a kind of herring, are found off the coast of British Columbia, but few people care to eat them, as they are very oily. They are caught in great numbers in *purse-seines*, or nets, and are taken to plants on Vancouver Island, where a very fine oil is extracted from them. The oil is used in the manufacture of soap, perfume, and fine varnish. The flesh which remains after the oil is removed is ground into fish meal to be fed to chickens, and the bones are crushed to be used as fertilizer. Products from British Columbia pilchards go to many widely separated countries of the world.

SOMETHING TO FIND OUT · Try to find out how a purse-seine is used.

A modern prospector panning gold in a branch of the Fraser River.

National Film Board Photograph

MINING

Coal · The first mineral to be mined in British Columbia was coal. It was discovered on Vancouver Island about a hundred years ago. Much coal has already been taken from the various mines on the island, but a large supply still remains. The most important coal-mining centres on Vancouver Island are at Nanaimo and Comox. When the Canadian Pacific Railway was built through the Crowsnest Pass, coal was discovered near Fernie. Much of this is used for fuel for the railway. Coal is also found near Nicola. Since there is a lack of coal on the west coast of the United States, some of British Colum-

Courtesy of Trans-Canada Air Lines

It is said that half the mineral wealth of British Columbia is treated at the Trail smelter.

bia's coal is shipped there, but larger quantities are made into coke, which is used as a fuel throughout the Province.

Gold resources · Gold was first found in British Columbia in the gravel beds of the Fraser River. This type of gold does not require mining and is known as *placer* gold. Very little equipment was needed by the early prospectors who came to "pan out," or wash, the gravel to find the nuggets of gold. Gold is heavy and it would sink to the bottom of the pan, while the lighter materials were washed out. The greatest gold rush in British Columbia took place farther north in the Cariboo Mountain area. Find this area on the map on pages 154–155. Placer mining was replaced by lode mining, in which the gold-bearing rocks are brought out from mines far underground. The newest gold mines in British Columbia are near Zeballos, on Vancouver Island.

Other minerals · In addition to coal and gold, British Columbia produces large quantities of silver, zinc, copper, and lead. Some of her famous mines are the Britannia Mine, on Howe Sound, which produces gold, silver, copper, and zinc; the Premier Mine, on Portland Canal, which produces gold, silver, lead, and copper; and the Sullivan Mine, near Kimberley, which produces lead, zinc, and silver, and is the largest lead-zinc mine in the world.

The smelting industry · Metals do not come from the mines in a pure state, but are found mixed with certain rock materials in what are called ores. Before the metals can be used they must be separated from the rock materials. This work, which, as you know, is called smelting, is done in large blast furnaces in a smelter. One of the largest smelters in the world is located at Trail, near the southern border of the Province, not far from the Sullivan Mine.

FARMING

Should you expect British Columbia to have as large continuous areas of farm land as have the Prairie Provinces? Why or why not? Where do you suppose most of the farming is carried on?

Most of the land of British Columbia is mountainous, but in the fertile river valleys, near the cities, and on the benches, or ter-

Chinese workers picking tomatoes in the vast tomato fields of the Fraser River Valley.

National Film Board Photograph

National Film Board Photograph

An irrigation ditch in the Okanagan Valley. The water is forced into it by electric pumps.

British Columbia Government Travel Bureau, Victoria

A field of daffodils on Vancouver Island. The bulbs are sold to florists and seed merchants.

races, around some of the lakes, particularly to the south, specialized types of farming are carried on most successfully.

Market gardens of the Fraser River Valley · In the Fraser River Valley there are numerous truck farms and market gardens where tomatoes and other vegetables and small fruits are grown in large quantities. In many districts this farming is done by Chinese, for they are hard-working gardeners and are used to getting the most out of every inch of ground.

Picking apples in the Okanagan Valley. Notice the large size and perfect shape of the fruit.

National Film Board Photograph

They have made this district into one of the finest market-garden areas in Canada. By hard work and by the use of fertilizers they are often able to produce three crops from the same land in a season: first, lettuce or radishes; then carrots, beets, or some such vegetable; and lastly, cabbage or Brussels sprouts. Canneries use the surplus fruits and vegetables. Other special crops of the Fraser Valley are flower bulbs, holly, hops, and tobacco.

Irrigated lands of the south · In the lake valleys in the south, particularly in the Okanagan Valley, there are orchards which, year after year, yield large crops of high-grade fruit—apples, peaches, plums, cherries, apricots, and pears. Melons are also an important crop. The rainfall is very light, and irrigation is necessary, but this does not prove to be too difficult or costly in certain areas where there are streams from the melting snow on the near-by mountains. Preparing the fruit for market is an important industry, too. Fresh fruit must be well graded, wrapped, and packed in boxes for shipping. Some of the fruit is dried in carefully-heated drying sheds, and some of it is canned.

The total amount of cereals—wheat, barley, and oats—grown in British Columbia is small compared with that grown in the Prairie Provinces, and it is used mostly as feed for

livestock and chickens. Much of this grain is grown along the northern branch of the Canadian National Railways between Prince George and Prince Rupert. These farms also produce potatoes, hay for the stock, and a few vegetables. As a rule, farmers in this part of the Province live far apart because only at scattered points in this district is the soil good enough for farming.

Mixed farming and ranching · On Vancouver Island there is dairying and mixed farming. Seeds are also produced from fields of beautiful flowers. These are valuable and are easily shipped to distant markets.

In the central part of British Columbia, where the rainfall is too light to make farming possible, very large areas are given over to the grazing of cattle and sheep, which live on the grass that the hot summer sun cures into hay.

More than 500 miles north of Vancouver, in the valley of Peace River, is a rich wheat-growing area. The grain is shipped eastwards into Alberta because there is no railway to the Pacific Coast. The Alaska Highway begins near Peace River and runs through country that may some day be settled.

TOURIST TRADE

British Columbia, with a wealth of snow-capped mountains, lovely lakes and rivers, and an island-fringed coast, has many attractions for tourists. There are mountains to climb and glaciers to see. Some tourists come to study flowers, plants, and birds, while others enjoy hunting and fishing. Many find the fresh, bracing air delightful for their vacation.

The Government has set aside parks to preserve all forms of life in their natural state. The national parks in the Rocky Mountains are world famous. Visitors may reach this mountain vacation land at Jasper in Alberta by the Canadian National Railways, and at

Highways in the Rocky Mountains district of British Columbia make it possible for visitors to motor to many of the loveliest spots in those mountains.

Courtesy of Canadian National Railways

National Film Board Photograph

Vancouver's beautiful Stanley Park. The bridge connects Vancouver with North Vancouver.

Yoho in British Columbia and Banff in Alberta by the Canadian Pacific Railway. Many prefer to see this beautiful country by automobile. A fine highway connects the Jasper and Banff parks. Along this route are many wonders of nature, such as great glaciers by crystal-clear lakes, hot springs, and fast-flowing rivers, with giant mountains rising on every side. This scenic route joins the Trans-Canada Highway at Banff, bringing tourists from the Prairies and from the United States and the Pacific Coast. At New Westminster the Trans-Canada Highway meets the Pacific Highway, which runs as far south as Mexico. Each year thousands of people spend their holidays driving over these routes, and as a result the tourist trade here is an important and growing industry.

Are you a good host? · The Gadwells' new sedan was a beautiful sight as it sped north along the highway towards New Westminster. It was the fourth of July, and the Gadwells, like thousands of other Americans, had come to celebrate their favourite holiday.

"That Canadian customs officer was a pleasant fellow," said Ellen Gadwell.

"Ellen, you say that every time we come up here," returned John Gadwell to his wife, who was a Canadian. "I don't think that he was a bit different from any of the other Border officials. It's just that you are glad to be on British soil again."

"That may be it, John, but look at the river ahead. Isn't that a grand sight?"

Soon they were high above the Fraser River as they crossed the Patullo Bridge. It was a dazzling sight, in the bright afternoon sun, to look down on the docks and mills along the New Westminster harbour.

Before reaching Vancouver, the Gadwells noticed a large tourist camp and decided to spend the night there. They saw cars from several different states in the camp—one of them from as far away as Texas. There were also two cars from Alberta.

Talking to the owner of the camp later, Mr. Gadwell learned that over a million tourists come to British Columbia each year, and most of them visit Victoria and Vancouver.

"They come from far and near," said the owner. "Of course in my camp we see only tourists who travel by motor, but they keep me busy all year round. Most of our Coast visitors come by railway.

"Maybe this will give you some idea of what the yearly tourist business means," he continued. "It would be like moving to British Columbia all the people living in the Montreal area. Think of the number of trains that would take and the number of meals and beds that would have to be provided. This host of people would then have to be gathered at scattered points from Victoria to Prince Rupert, from Vancouver to Revelstoke, and then returned to their homes.

"All this activity is spread over a whole year, and the tourists don't all travel by train. Steamships, buses, and aeroplanes also carry part of the tourist trade."

"I must say that I enjoy coming to Canada and seeing part of your great country," said Mr. Gadwell.

"Yes," added Mrs. Gadwell, "travel brings more than good business, for it leads to understanding and good will between peoples."

THINGS TO DO · 1. At the Panama Canal a record is kept of all the cargoes which pass through it. Make a list of those cargoes which might come from British Columbia. Re-read the chapter to make sure that you do not omit any.

2. Use the population figures on page 240, and make a list of (*a*) the provinces of Canada in the order of their population; and (*b*) the six largest cities of Canada in the order of their size. Opposite the name of each province write the name of its capital.

3. By consulting your lists, find out how many provinces have a total population less than that of the city of Montreal.

4. Following, at the left, is a list of interesting sights in British Columbia. Copy the list, and in front of each item put the number of a place where it might be seen, chosen from the list at the right. In some cases you may use more than one number.

Coal mine	1. Victoria
Grain elevators	2. Esquimalt
Fine harbour	3. Vancouver
Pulp and paper mill	4. Prince Rupert
Cold storage plant	5. Trail
Apple-packing plant	6. Fernie
Smelter	7. Powell River
Power station	8. Ocean Falls
Provincial University	9. Nanaimo
Parliament Buildings	
Naval base	

5. Compare the minerals of British Columbia with those of Ontario and Quebec. Which are mined in British Columbia that are not produced in the other two provinces?

QUESTIONS TO ANSWER · 1. Where are the largest trees in British Columbia? Explain why they have grown so tall and straight.

2. During his summer vacation a boy from Kamloops goes to visit his cousin at Port Alberni, on Vancouver Island. What will he like and what will he dislike about the weather? If he went during the Christmas holidays, what differences would he notice?

3. Where and why is irrigation necessary in British Columbia?

SUGGESTED ACTIVITIES · 1. Suppose that a family from Winnipeg is spending the summer in British Columbia. Plan their trip for them. Draw a map, and on it show the route which they will follow from Winnipeg to British Columbia and the places where they will stop. The father is a wheat dealer. Where should you send him to see the finest stands of wheat? The brother and sister in the family decide to take turns keeping a diary to send to their friends at home. Each member of your class might write up the diary for one day. Be sure to describe those things that would be interesting to strangers.

2. Try writing the story of a salmon from the egg to the dinner table. In your story you might introduce the term *fish-ladder*. Find out what it means and how the salmon use it.

VII · Canada's Northland

National Film Board Photograph

The Alaska Highway, running north through western Canada, is an important link with the Northland.

YUKON AND NORTHWEST TERRITORIES

Old geography schoolbooks tell us almost nothing about the northern parts of our country. They picture it as a land of ice and snow, inhabited by a few wandering Eskimos living in igloos or by Indians living in tents. Yet the north is today one of the most important parts of Canada. As you read about this great Northland, look for answers to these questions: Why have we been so slow in discovering the value of Canada's Northland, and in making homes there? What can men do to make a living in northern Canada?

EXPLORATIONS

Early explorers · During the sixteenth century sailors from the British Isles and other European countries were searching for a short way to China by sea. Some thought that they could find it by sailing north of Canada. They failed to find the short way to China, but in searching for it Davis, Frobisher, Hudson, and others discovered new lands and seas. On the map on pages 60-61 find Baffin Island, Hudson Bay, and Frobisher Bay.

Many years after these unsuccessful attempts were made to find a northwest passage by sea, Samuel Hearne tried to find a way overland from Hudson Bay to the northwest. Twice he was forced to turn back, but his third attempt brought him to the Coppermine River, which led to the Arctic Ocean. Several years later, Alexander Mackenzie travelled northwards from his trading post in what is now northern Alberta and reached the point where the Mackenzie River joins the salt water of the Arctic Ocean. The story of northern Canada is filled with the names of such brave explorers, each of whom added some new land, part of a coastline, or new islands and seas to those which were already known. The map of northern Canada is still

A map of the Northwest Passage showing the routes of two of its explorers.

not finished. There are more lands, especially islands, to be explored and unknown places to be mapped.

Although the search for a northwest passage began more than four hundred years ago, it was not until the present century that the Norwegian explorer Roald Amundsen first sailed from the Atlantic to the Pacific along the northern edge of the mainland of Canada. The first vessel to travel all the way from the Pacific to the Atlantic was the R.C.M.P. vessel *St. Roch*, which made the journey in 1942.

Modern explorers · What is there to learn about the far north of Canada today? We must first understand that it extends over a very large area. An aeroplane could fly 2500 miles northwards from Ottawa without reaching the northernmost part of the country. After the first hour or so the flight would be over land almost empty of people and only partly known.

In 1946 some Canadian explorers travelled 3000 miles from Churchill to Edmonton in "snowmobiles," which are a kind of automobile fitted to travel over snow. On this long journey in mid-winter they called at only two or three settlements of any size. During much of the time these men were crossing land probably never before seen by white men. Let us make some journeys to discover for ourselves what Arctic Canada is like.

LIFE IN THE GREAT NORTHLAND

Arctic rescue · Some years ago a trader, his wife, and his assistant were living at Fort Ross, on Bellot Strait, in the centre of Arctic Canada. For two summers the supply steamer had failed to reach them, and food and trading goods were running low. A young R.C.M.P constable had travelled by dog sledge from his station in Baffin Island to see if all was well. Early in the winter of 1943 it was decided that an aeroplane should go to Fort Ross to rescue these people.

The plane left Stevenson Field at Winnipeg, flying northwards over the snow-covered fields of the Red River Valley, and across the pine and spruce trees, the rocks, and the frozen lakes of the Laurentian Upland. In time, the winding track of the Hudson Bay Railway could be seen far below. Then the trees began to disappear, and below there was only the white expanse of what the Indians call "the land of the little sticks," or the Arctic "tundra." (This region is also

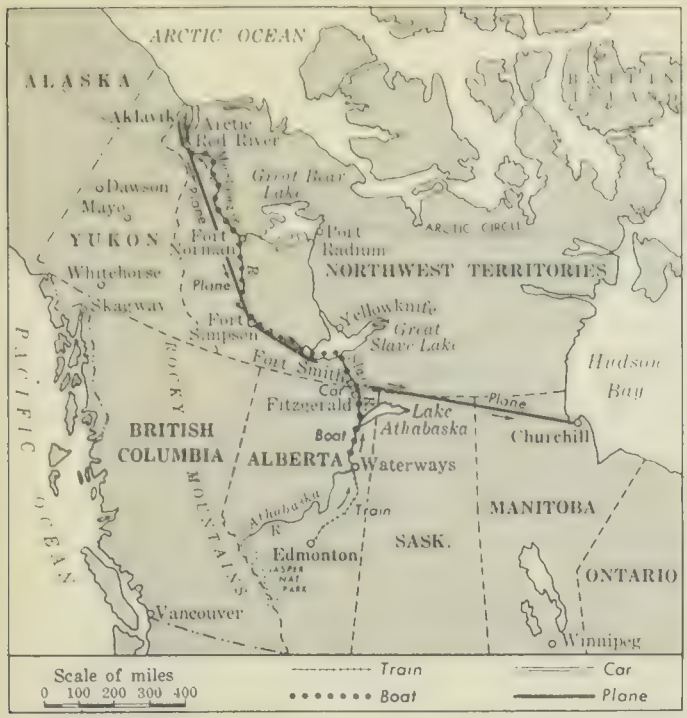
called the *Subarctic* because it is south of the Arctic.) After a landing at the Churchill airport, not far from where the Danish explorer Jens Munk wintered his two little ships more than three centuries before, the plane flew on across Hudson Bay to land at another large airport on Southampton Island. The days were now getting very short because the plane was so far north. Could the airmen reach Fort Ross and return safely to Southampton Island? Three attempts were made, and on the third one the fur traders were picked up and taken south. Without wasting any time, they were taken to Winnipeg, where they arrived still dressed in their Arctic clothing of furs and sealskin boots. The plane had been to the heart of the Arctic and was back safely within a few days' time.

The Mounted Police constable who had travelled to Fort Ross did not fly "outside" to Winnipeg. He stayed at his work of patrolling the north. When he finally reached his home at Arctic Bay, he had been away almost a year and had travelled with his sledge dogs 1100 miles across snow-covered land and ice-filled seas. Aeroplanes have changed life in the north. They will be used even more in the future than they are now.

Summer holiday on the Mackenzie · The Canadian north looks very different in summer from what it does in the winter. We can leave Edmonton by the train that runs northwards for almost 300 miles to the town of Waterways. Here the railway ends, and the river boats take over the passengers and freight. A white-painted boat, with a stern wheel to drive it along, pushes loaded barges down the winding Athabaska River. If you look at the map on pages 116–117 carefully, you will find that the source of this river is in Jasper Park in the Rocky Mountains. Through the shallow water of Lake Athabaska our steamer thrashes its way on into

Inside the plane after the rescue at Fort Ross. Notice the parachutes at the left and the spare gas tanks in the background for emergency purposes.

Courtesy of Hudson's Bay Company



Trace the route of our Mackenzie River journey on this map as you read the text.

the swifter water of the Slave River. From here we are following the route taken by Alexander Mackenzie's canoe, which first made this journey in 1789. Three days after leaving Waterways, our boat pulls up to the river bank at the town of Fitzgerald. Beyond lie sixteen miles of rapids, and so we must leave the river and take to a road over which motor cars, trucks, and tractors carry the passengers and cargo. Soon we are again on the river bank and boarding a steamer that can take us 1200 miles down to the sea. This boat begins its journey at Fort Smith, the first settlement we see after crossing the boundary from Alberta into the Northwest Territories.

On the wharf are enormous stacks of freight. Some is machinery going to the gold mines around Yellowknife, some is for the oil field at Norman Wells, and much is for the radium and uranium mines near Great Bear Lake.

Other piles of freight are for fur trading posts. There are canoes, dog sleds, bags of flour, cases of coffee, radios, and cases of ammunition. For almost four months each year the large steamers and Diesel tugs carry thousands of tons of such freight down this great waterway to the north. If we were to follow them, they would lead us to interesting sights and scenes. We might find ourselves on the shore of a lake near a small group of neatly painted wooden buildings with the name "Hudson's Bay Company" in large letters across the front of one of them. Among these buildings we should find a small wooden store and a warehouse large enough to hold a year's supplies. Another building might hold bales of furs packed tightly in burlap, each marked with the sign of the trading company, the date, the weight of the bale, and the name of the post.

Subarctic gold mines · Another settlement may be very different from this little trading post. If it is the gold-mining town of Yellowknife, we shall be among more than 3000 people, at a place where there was no one living before 1935. Now there is an airport here, and there are hotels, restaurants, motorboat taxis to link up distant places, electric lights, and a wooden schoolhouse. Rising on the hill in the background is one of the mining

A load of pipe brought from Waterways for the oil pipe line from Norman Wells to Whitehorse.

National Film Board Photograph

Bulman Photo, courtesy of Hudson's Bay Company

An Indian trapper displays his catch of lynx, fox, and skunk at a trading settlement.

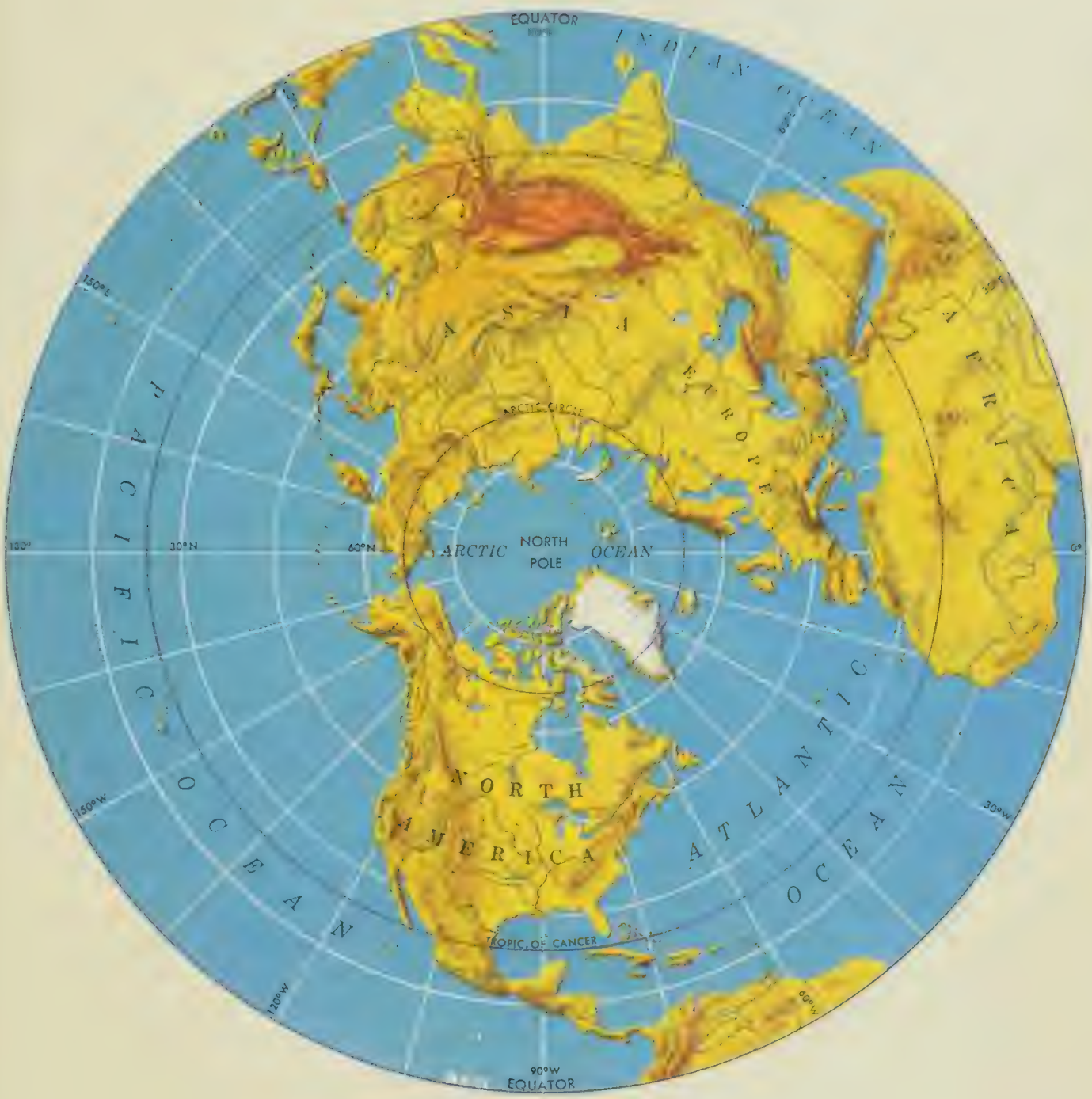
"headframes," which explains why a town has grown up at this place. The wealth of Yellowknife has come from the mines of gold and other metals deep in the ground.

Oil · Two other settlements in Canada's vast Northland owe their growth to mineral wealth. The oldest of them is Norman Wells, where oil was first produced about 1920. There are now many wells here, and scores of large tanks in which the oil is stored. During the last war a pipe line was built across the river and westwards to Whitehorse, a distance of almost 600 miles. This was built so that gasoline could be furnished for trucks using the Alaska Highway and for aeroplane use in Alaska and at Pacific Coast ports. The use of the pipe line was discontinued in 1944.

Uranium for atom smashers · Another settlement is the mining town of Port Radium, on the shore of Great Bear Lake. It is now world-famous as the source of uranium which may be used for supplying a tremendous amount of power. Although aeroplanes can fly directly to Port Radium, the way there by water is long and slow and is open only in summer. Freight has to be loaded and unloaded seven or eight times between Waterways and the mine. From the deep mine at Port Radium, ore known as pitchblende is packed in bags, shipped on barges across Great Bear Lake, down the Bear River, and up the Mackenzie River to Fort Smith. There it is carried to Fitzgerald by truck and again loaded on to barges for the journey on the Slave River and the Athabaska River to Waterways. Although the valuable cargo of ore has already travelled a long distance, it must be carried hundreds of miles farther before it reaches the refinery in Ontario, where the radium and uranium are produced from the ore.

Traders and trappers · On our Mackenzie River journey we meet other people besides miners and oil men. This is the heart of a rich fur region, and each settlement has one or more trading stores where the Indians may sell their winter catch of beaver, muskrat, fox, marten, and other valuable skins. In return they buy groceries, clothes, rifles, tents and canoes, and even such things as radios, gramophones, and washing machines. Some trappers now use aircraft to fly from their homes to their *traplines*. A trapline is a trail, perhaps twenty miles long, leading from one trap to another through the forest. The hunter follows it on snowshoes, often with toboggan and dog team. At the end of the trapping season he and all his belongings are picked up by the plane and returned to the trading settlement.

Our journey ends at Aklavik, on the delta of the Mackenzie River. There we meet Eskimos for the first time. They surprise us. Some are prosperous and own large schooners which are powered with Diesel engines. They are trappers of white foxes


EQUATOR
INDIAN OCEAN
ASIA
EUROPE
AFRICA
ARCTIC CIRCLE
ARCTIC OCEAN
NORTH POLE
PACIFIC OCEAN
NORTH AMERICA
ATLANTIC OCEAN
TROPIC OF CANCER
EQUATOR
150°E
30°N
60°N
150°W
120°W
90°W
60°W
30°W

A variety of vegetables is grown in this thriving vegetable garden at Fort Smith.

and spend most of the year along the Arctic coastline. We shall see other Eskimos later in our northern travels.

A strange land · Now that we are at the end of our boat journey northwards, let us look at the countryside before returning south. It is July. There is no snow left, and the weather is hot. Our cabin in the steamer has become too hot for comfort. The sun shines all day out of a clear blue sky, but it also shines at night! At noon it is, of course, due south of us, but at midnight it is due north, and, instead of having set, it is in full view, but low in the sky. This is part of the land of the midnight sun.

What of the land? There are forests beside the Mackenzie River as far north as Aklavik. In the settlement there was for some years a successful dairy farm, with a dozen cows grazing in a clearing where the trees have been cut down. Milk and butter from the farm were sold to the hospital, the school, and the homes of the town. Many of the houses have small gardens, but this land is too far north for some types of vegetables to be grown successfully every year. The growing season is short. Frosts come late in the spring and early in the autumn.

Reindeer farms · Sometimes the people of Aklavik and of other Mackenzie Valley villages have fresh deer meat to eat. It is a great treat. The animals are kept at a Government reindeer station near the Mackenzie delta and are in charge of Eskimo herders. The animals of the original herd were driven all the way from Alaska, and the journey took several years.

Other farms · When we set out to visit the far north, we did not expect to hear of a dairy farm 1100 miles north of Edmonton and to see fine vegetable gardens at settlements like Fort Smith, Fort Simpson, Arctic Red River, and elsewhere. How is it possible to raise vegetables in this far northern country?

Remember the long summer days of the north. These days bring warmth to the air and the soil. Although northern soils are not rich, those beside the rivers and lakes are often good. The northern part of the Mackenzie Valley is one of the coldest parts of Canada in winter, but its summers are as warm as those of parts of Quebec and Newfoundland.

South by air · Are there no ice-filled seas and frozen lands in the far north? There are, but to see them we should visit the eastern Arctic.

Our journey south from Aklavik would take too long by river boat. Why would the return trip by boat be so slow? We shall fly southwards. The plane is fitted with floats, which enable it to take off from the river and to land on any lake or river that is convenient. Among our fellow passengers is a goldminer. As we fly south, far above the winding silvery course of the river, he points to the rugged peaks of the Mackenzie Mountains over to the right.

"Over those mountains, to the west, is my home town, Dawson, in the Yukon," he tells us.

We ask him about his work as a goldminer. This is what he says:

In the Inside Passage. At the right are mountains of the Coast Range of British Columbia.

James Sawders

A gold dredge at work in a Yukon river. It washes and sifts the sands and gravels to obtain the gold.

"You'd never believe how times have changed in the Yukon. When I first went in, I travelled right across the continent to Vancouver. Then I went by steamer along what they call 'The Inside Passage' to Skagway. It was a fine trip, to be sure; no rough weather and such scenery to look at! Still, I wanted to get to Dawson and to work. At Skagway—that's in Alaska, you know—we boarded a train for Whitehorse, 110 miles away. It was a small train on a *narrow gauge line* (where the tracks are closer together than usual), but did it have a time pulling us through those mountains! I had thought nothing could beat the Rockies that we crossed in British Columbia, but on that Whitehorse line, over and over again, we would think that train was taking us into a blind valley with nothing but a mountain wall ahead. Just when we thought the end had come, the train would crawl around on a shelf-like ledge with a drop straight down so far that it made you dizzy to look.

"At last we reached Whitehorse, where we boarded one of those stern-wheelers that they use on the Yukon River because the river is so shallow and has so many sand bars. These boats look for all the world like the old Mississippi steamboats, only smaller, of course. Several times we passed barges bringing silver bars from Mayo. Yes, sir, it was some journey in those days, though easy as compared with the months it took the 'old timers' to get there.

"And today I shall go home by plane. When we reach Fort Simpson, I'll fly to the Alaska Highway. Then north and west to Whitehorse and Dawson. Why, man, it takes only hours to make that trip now where before it took weeks.

"Travelling is not the only thing that has changed in the Yukon. Ways of mining have changed just as fast. The 'old timers,' with their hand labour, could pan only the best of the gold-bearing gravels. Today, by dredging or 'hydraulicking,' gold almost as fine as dust can be saved. The dredges suck up the sands and pass them through sluices which separate the heavy gold, while hydraulicking washes down whole hills of loose sand and gravel. What a sight it is to see the huge stream like that from a firehose, playing in the sunshine! But machinery to do work like that costs money. The price of a dredge is often over a million dollars, and so only a big mining company can afford to operate one.

Courtesy of Hudson's Bay Company

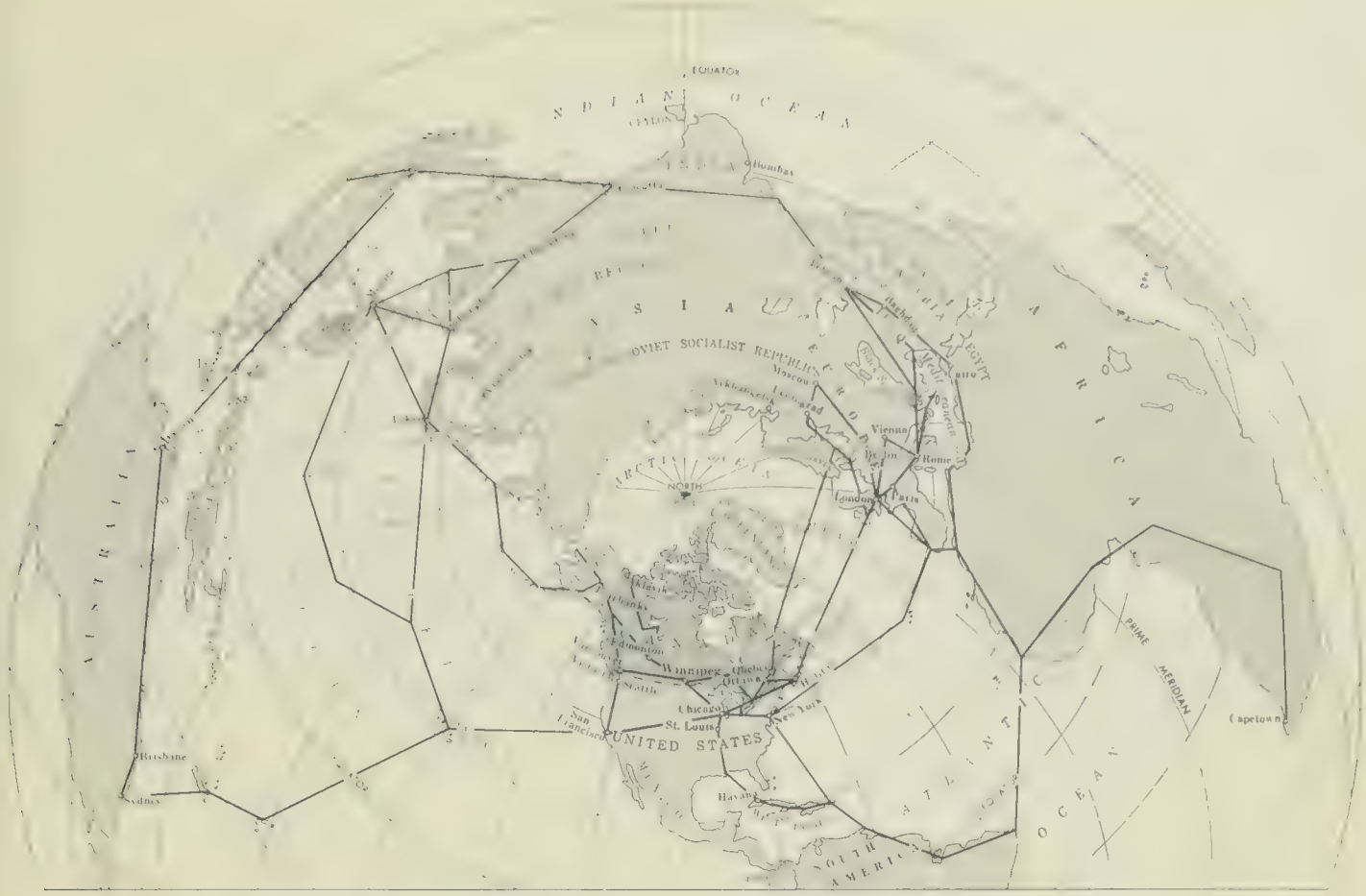
The Nascopie at anchor in an inlet on the east side of Baffin Island. This sturdy ship is a welcome sight each year to the people of the far northern coastal settlements at which it stops.

"Today life in the northland is easier, too, in many ways. Why, at Dawson we even have fresh vegetables brought in by air before our own gardens begin to bear! Don't ever imagine that we are too far north to raise vegetables, and big ones too—potatoes, carrots, celery, turnips, cabbage, cauliflower, parsnips. During our long, hot summer days everything grows so fast that you can scarcely keep track of it; and with schools, a hospital, and the radio, what more can we ask for?"

White whales and grain elevators at Churchill. In what season was this picture probably taken?

Courtesy of Canadian National Railways

A veteran icebreaker · Our miner friend leaves us at Fort Simpson, but we continue on to Fort Smith and leave there by a plane going to Churchill. There we can visit a famous ship, the R.M.S. *Nascopie*, the Hudson's Bay Company supply passenger boat. For years this famous steamer has left Montreal early in July, calling at trading posts along the coast of Labrador and in Hudson Bay. At Churchill additional coal is taken on board, more trading supplies are loaded, and the ship sets out for the difficult part of its journey. Before its return to the St. Lawrence in October it will have been around the north of Baffin Island to famous places like Arctic Bay and even to Fort Ross.



A map showing why Winnipeg may be said to be at a crossroads of the air.

These settlements are different from those in the Mackenzie Valley. The soil is too poor here and the summers are too short for garden truck to grow out of doors. But we shall find cold frames and hot-houses, window boxes, and plants indoors to make up for the rather bare outdoors, with no trees and few small bushes.

Still farther north is the Mounted Police post at Dundas Harbour, where the *Nascopie* leaves a new group of men, takes mail on board, and begins the return journey. Every year there is ice in some of the seas that must be crossed. The ship batters its way through the piled-up floes, trying all the time to avoid being caught and frozen in for the winter. During some summers there is so much ice that navigation is almost impossible.

The *Nascopie* carries food and other trading goods, but it also carries doctors and nurses to care for the health of the Eskimos. There are a few hospitals in the eastern Arctic, but they are very far apart. Sometimes, if many of the people at a distant settlement are ill, the Government sends a special R.C.A.F. aeroplane with a doctor and nurse to care for them.

Crossroads of the air · Because the north is important to all of us and yet is a hard country in which to travel, aeroplanes are being used there more and more. Aerial photographs are being taken which will give us new maps with the help of which we may be able to learn, in a few years, secrets that we have been seeking for centuries. Then ships may find it possible to steam through the Northwest Passage that John Davis looked for so long ago.

In time aircraft will be crossing Arctic Canada on friendly visits to countries on the

other side of the world. People on their way to Canada or the United States from Europe or Asia may be taking the short cut by air, reaching Edmonton from Alaska, Winnipeg from across the Arctic islands, or Ottawa across Greenland. We must all learn to turn our eyes northwards to see what is happening on Canada's vast Arctic frontier.

ACTIVITIES · **1.** With a globe and an electric flashlight in a darkened classroom, try to find the explanation for the midnight sun. Be sure that the north pole of the globe points to the north of the classroom. Be sure to hold the flashlight so that its light shines straight down on the tropic of Cancer. This is how the sun's rays actually shine there at noon on June 21st. Over Aklavik, on the globe, paste a tiny piece of red paper or make a dot with red chalk. Now rotate the globe from west to east (this is the way the earth turns on its axis) and watch the red dot. Is it always in the light? When the dot is nearest the flashlight, it is noon at Aklavik. The sun's rays are then more nearly vertical, and the sun is at its highest in the sky. When the dot is farthest from the flashlight, it is midnight at Aklavik. The sun's rays are then very slanting, and the sun is very low in the sky, almost on the horizon.

On the globe put a yellow dot where you live. Holding the flashlight and rotating the globe as before, watch the yellow dot. Is it always in the light? What do we call the time when we are not within the light of the sun? Compare the length of your summer nights with those at Aklavik. Compare the way the sun shines at noon on your home town with the way it shines at Aklavik. At which place is the sun higher in the sky at noon?

Repeat the whole experiment to show winter conditions. The north pole of the globe still points to the north, but the flashlight is now held above the tropic of Capricorn.

You will want to write down in your notebook all that you have learned.

2. Re-read the stories in this chapter and make a list of all the important things you can learn from them. How do the places described differ from your home town in the matter of weather, in the way people live, and in the way they work and travel? If you could visit only one of these places, which would you choose and why?

3. On a large map of the Northwest Territories, the Yukon, British Columbia, and Alberta show the rivers, lakes, and towns mentioned in the stories. Show the chief mountain ranges by shading; print in their names. Show the position of the tundra. With crayons of different colours show:

a. the route which the radium ore follows from Port Radium to Ontario.

b. the air route to Whitehorse from Edmonton.

c. the land and water route from Calgary to Dawson by way of the Inside Passage.

Be sure to add a key to your map to explain what each colour means.

4. Ask your teacher to help you to find information about radium. Why is it so precious? What is it used for? Perhaps you can find something about Madame Curie, who gave her life to discovering and experimenting with radium.

5. If you can get copies of *The Beaver* for December, 1943, and for December, 1945 (published by the Hudson's Bay Company), read the story of Captain Smellie and the *Nascopie* in the former and the story of "The Trapper" in the latter.

LIST OF BOOKS · For teachers (extracts may be read to pupils):

Down North, by MALCOLM MACDONALD (Oxford)

Romance of the Alaska Highway, by PHILIP GODSELL (Ryerson)

Canada Moves North, by RICHARD FINNIE (Macmillan)

North Again for Gold, by EDGAR LAYTHA (Ryerson)

North to Adventure, by SIDNEY R. MONTAGUE (McLeod)

To the Arctic with the Mounties, by DOUGLAS S. ROBERTSON (Macmillan)

The Lure of the North, by RICHARD FINNIE (Macmillan)

Arctic Pilot, by WALTER E. GILBERT (Nelson)

The Story of Our Canadian Northland, by JOSEPH M. SCOTT (Dent)

Courtesy of Canadian National Railways

Newfoundland's Gander Airport is a way station on the trans-Atlantic air route to the British Isles.

NEWFOUNDLAND

Newfoundland, "Britain's oldest colony," is not a part of Canada, although it lies close to the shores of that country. It is believed that John Cabot visited Newfoundland in 1497, but it is probable that the Norsemen may have discovered the island almost five hundred years earlier. Cabot told of the large numbers of codfish to be caught along the coastal waters of the island, and, from that time on, fishermen visited its shores every summer. When Jacques Cartier sailed westwards across the Atlantic in 1534, he was not sailing unknown seas. Instead, he followed a well-known route and went at once to Cape Bonavista on the east, a point known to fishermen. The first settlements were made along the east coast by English fishermen, and, later, French fishing stations were set up on the south coast. For many years the colony was self-governing, but since 1933 it has been ruled by a governor and six commissioners, or advisors, half of whom are from Great Britain.

MAP STUDY · Using the map of Canada on pages 12–13, the map of North America on page 2, and the map of Newfoundland on page 176, answer these questions:

1. What strait separates Newfoundland from the mainland on the north? from Cape Breton Island? All shipping to and from the St. Lawrence River must pass through one or the other of these straits.

2. What part of the mainland lying east of Northern Quebec belongs to Newfoundland?

3. What large river drains this region?

4. What is the name of the cape at the southeast corner of the Avalon Peninsula?

5. The mountains of Newfoundland are a continuation of those in the eastern United States and Canada. In what direction do they extend?

6. The coast of Newfoundland on all sides is cut by many deep fiords, but on the eastern side of the island the shores are barren and rocky instead of forest-covered. The coast of what Canadian province is cut by fiords?

The resources and industries of Newfoundland.

WHERE THE PEOPLE OF NEWFOUNDLAND LIVE

Coastal villages · If you were to fly over Newfoundland in an aeroplane, you would see that most of the people live in small villages along the coast, such as those along the coast of the Avalon Peninsula, and that the interior is almost without people except along the one railway which crosses the island.

Much of the east coast is rocky and barren, with bold headlands and deep bays, which mean good harbours. Mists and fogs from the Atlantic sweep in over this coast during much of the year. Although the winters are not so cold as they are in Quebec or Northern Ontario, they are unpleasant because they are damp. The summers are usually cool and damp, although there are pleasant, sunny days.

The west coast is pleasanter than the east coast in every way. Much of the scenery is beautiful because the hills and headlands are forested. The summers are warmer than in the eastern part of the island and the winters are colder, while in general there are more sunny days.

Many of the people who live along the coast have hard lives, with few pleasures or amusements, but they are a sturdy, uncomplaining folk, who make the best of what they have.

St. John's · This old city is built on a hillside overlooking a sheltered bay which gives it a magnificent harbour. Most of the manufacturing for the island is centred here. The manufacturing industries include the canning of fish and the making of cod-liver oil, as well as the making of fish nets, rope, paint, clothing, boots and shoes, and hardware.

Farm lands in the Avalon Peninsula, near St. John's.

Philip Gendreau, N. Y.

© By the Holloway Studio, Ltd.

A Newfoundland fishing village. Notice the sheltered harbour and the frames for drying codfish.

MAKING A LIVING IN NEWFOUNDLAND

Fisheries · You have already learned something about cod fishing on the Grand Bank. Turn back to pages 23–25 and re-read the part which describes the fishing there. Most of the islanders fish along the shores using trap nets. The cod-fishing season lasts from June first to the end of October. The fish are shipped to Spain, Italy, and the West Indies. Cod-liver oil is made in refineries along the northeast coast.

Herring are plentiful during the summer, particularly along the west coast. Lobsters, too, can be found almost anywhere along the coast.

Sealing and whaling · In the early spring, sealing is an important and exciting adventure. The sealing fleet leaves St. John's when the ice floes begin to drift in from the north. On these great cakes of ice are thousands of mother seals and their soft white-furred babies. Aeroplanes go ahead of the fleet, directing it to the place where the seals are most thickly herded together. When the boats reach the ice floes, the men jump out on to the ice and rush to kill the soft seal babies with clubs. Then they rip off the fur coats and the thick layer of fat beneath the skin. The fat is used to make a fine quality of oil and soap, while the skins are made into a fine grade of leather used for purses and handbags.

Sealing is difficult, dangerous work. Some-

Newfoundland fishermen splitting and cleaning their catch of codfish for marketing.

By Gustav Anderson from Ewing Galloway

By Gustav Anderson from Ewing Galloway

A general view of Cornerbrook and its paper mills. The forests near at hand furnish the raw material for the piles of pulpwood in the foreground.

times numbers of men drift out to sea on a cake of ice or are drowned when a strong wind dashes the ice cakes to pieces.

Whaling is carried on, too, from the east coast. From the whales are taken oil and whalebone, and the rest of the animal is made into fertilizer.

Forest industries · All of Newfoundland is by no means bleak and barren. In the broad valleys of the interior and on the west coast are forests much like those of Northern Quebec. The chief products from these forests are pulp and paper, and the value of the pulp and paper industries now exceeds the value of the fishing industry. Newfoundlanders are not fond of living inland, for they love the sea, but they are discovering that they can make a better living there.

The two principal mill towns are Grand Falls, on the railway line that crosses the interior, and Cornerbrook, on the west coast. The mills in both places are operated by English companies, and they ship most of their output to Britain, though much pulp used to go from Cornerbrook to the United States. Both mills are near salt water, which means that the cost of shipping is reduced. Cornerbrook has an advantage over Grand Falls since its paper is loaded from the company wharves directly on to the boats.

Farming · While farming is not by any means impossible in Newfoundland, it is not easy. The short growing season, the rather cool summers, and the thin soil make it impossible to grow a great variety of products. Hay thrives, so that cattle can be raised, and potatoes and turnips are common. Blueberries grow well and are shipped frozen to the United States. Since Nova Scotia blueberries are much nearer the market, however, it is often difficult to sell the Newfoundland berries at a profit.

Mining · On Bell Island in Conception Bay, not far from St. John's, are the Wabana iron mines, the most important in Newfoundland. The iron is of good grade and, being almost at the water's edge, can be easily shipped away. Much is sent across Cabot Strait to Sydney, Nova Scotia, where it is smelted and made into steel with the help of the coal near by. Some of the ore is sent to the United States.

Copper is mined at several places on the northeast coast; and copper, lead, and zinc are mined at Buchans, not far from Grand Falls. It is likely that more minerals will be discovered and worked as time goes on.

NEWFOUNDLAND AS A STEPPING–STONE

Trans-Atlantic flights · Alcock and Brown, the first men to fly across the north Atlantic, took off from Newfoundland when they made their historic flight in 1919. From that time on, Harbour Grace and, later, Botwood were mentioned as landing fields for aeroplanes crossing from England to Canada or the United States. Since Newfoundland is the part of North America nearest to the British Isles, it is a way station on the trans-Atlantic route. Coming and going, the planes stop to re-fuel in Newfoundland.

During the Second World War, when planes had to be flown from Canada to the British Isles, several great airports were built. One, at Gander Lake, served the more southerly route, and another, at Goose Bay in Labrador, served the northern route. With the rapid development of trans-Atlantic flying, these airports are making Newfoundland and Labrador increasingly important.

The Atlantic cable route · In another way Newfoundland is a connecting link between the Old World and the New World, for it is to this island that the Atlantic cables come in. Try to find the story of the laying of the Atlantic cable. It is a proof of the old saying, "If at first you don't succeed, try, try again."

LABRADOR

Territory on the mainland · Labrador, on the mainland, belongs to Newfoundland. It is a bleak, rocky, and largely unexplored land. Fishermen come to its shores in the summer season, and a few remain throughout the year. These men call themselves "liveyers" because they "live here" constantly.

In the interior, along the Hamilton River, there is wooded land, and waterfalls give promise of abundant electrical power. At present the country is mostly undeveloped.

THINGS TO DO · **1.** Newfoundland has a population of only about 300,000. Give as many reasons as you can think of to explain why so few people live on so large an island. Re-read the chapter to make sure you miss nothing.

2. Find out all you can about the seals that are caught off the coast of Newfoundland. There are two kinds—the harp seal and the hood seal. Do not confuse these with the fur-bearing seals caught in Canada by early French trappers.

3. Give as many reasons as you can think of for Canada's interest in Newfoundland.

4. Try to find the story of Doctor Grenfell, the famous missionary to Labrador. In his book *Forty Years for Labrador* he tells much about the people and their many difficulties.

EXTRA READING · A book to tell you more about Newfoundland:

The Story of Newfoundland, by J. A. COCHRANE (Ginn)

A REVIEW OF CANADA

Now that we have studied all the provinces and territories one by one, let us go back and take a look at Canada as a whole.

HOW LARGE IS CANADA? · **1.** In Unit I you took a trip across Canada from coast to coast. By using a railroad timetable, find out how many miles it is from:

Halifax to Montreal;
Montreal to Winnipeg;
Winnipeg to Calgary;
Calgary to Vancouver.

Add these distances and find out how far it is from coast to coast.

Using the map on pages 12–13, find the distance from Windsor, Ontario, to the northernmost point of Ellesmere Island.

2. Look on page 240 to find the area of Canada. It is given in square miles. (A square mile, you know, is a square each side of which is a mile in length.) Canada is a very large country. Is it larger or smaller than the United States?

3. In what ways is a large country a help to the people living in it? In what ways may it be a hindrance to them? Discuss these two questions in class. You may not find it easy to decide on the answers.

HOW MANY PEOPLE LIVE IN CANADA? · **1.** A large country needs a large *population*, or many people, to live in it. On page 240 find out what the population of Canada was in 1946, when the people of the country were last counted.

2. Which has the larger population, Canada or the United States?

3. If we divide the number of people in a country by the area in square miles, we find out about how many people live on each square mile of land. Which has the greater number of people living on a square mile, Canada or the United States?

WHERE DO THE PEOPLE LIVE? · **1.** Neither Canada nor the United States has the same number of people living on each square mile of land. Look at the map on page 16, which shows where the people of our country live. Write a sentence or two to tell as carefully as you can in what parts of our country most of the people live. Give as many reasons as you can why this is so. In the United States more people live in the east than in the west. Is this also true of Canada? Give at least two reasons for this fact.

2. Which province of Canada has the most people? Which province ranks next? About what part of the whole population of Canada is found in these two provinces?

CANADA'S NATURAL REGIONS · **1.** Through how many provinces and territories does the Laurentian Upland extend? Describe its surface in a sentence or two.

2. Canada has three important sources of wealth in the Laurentian Upland. One of these can never be replaced after it is used; the other two may be destroyed if used carelessly. What are they? If you are not sure, find the words "Laurentian Upland" in the index and read the pages listed.

3. Give as many reasons as you can why farming is not important in the Laurentian Upland. There are two farming districts in this region, however. One is in Quebec and the other is in Ontario. Where are they? What crops do they produce? Why is farming possible there?

4. Name and locate the chief plains of Canada. Which of these plains is high? Which are low? Which is the most densely populated? Which plain has scarcely any people living on it?

THE CLIMATE OF CANADA · We have already learned that the *climate*, or the weather that a place has throughout the year, is not the same all over the country. We know that in the far northern parts of the country the winters are so cold and the summers are so short that very little grows, even though the long summer days may be quite hot. We know, too, that even in the southern parts of the country the winters are cold, though the summers are long enough and warm enough to allow many crops time to ripen.

1. Which parts of Canada have the mildest winters? Give the reason in each case.

Temperature is not all that we need to consider when we think of climate, however. Rainfall is very important, too. In speaking of rainfall we include snow; in fact, all the moisture which falls on the surface of the earth. Our rainfall is measured in inches. When we say that an inch of rain has fallen, we mean that enough water has fallen to cover the ground on which it fell to the depth of one inch. Ten inches of snow are equal to about one inch of rain.

2. Look at the map on page 29. Find those parts of our country which have the most rain. How can you explain the heavy rainfall in these parts?

Find those parts of our country which have the least rainfall.

In that part of the temperate zone in which the southern part of Canada lies, at least 15 inches of rain are needed for the growth of most crops. Where there is less than 15 inches of rain, trees will not grow, and only a few crops will grow unless water is brought to them by means of irrigation. One of these crops is wheat.

The oat lands of Canada.

Find those parts of our country which have less than 20 inches of rain yearly. Then turn to the map on page 125 which shows where wheat is grown. About how much rain falls yearly on the wheat lands?

3. Now look at the map on this page which shows where oats is grown. Although you find oats growing in the same part of the country as wheat, on the whole does wheat need more or

The agricultural regions of Canada.

less rain than oats? Does it need more or less heat than oats? Now explain why oats rather than wheat is grown in the Maritimes.

AGRICULTURE IN CANADA · 1. Look at the map on page 181 showing the agricultural regions of Canada. Do mixed-farming regions need more or less rain yearly than wheat regions? What crops are produced in a mixed-farming region?

2. Looking again at the map of the agricultural regions and at the rainfall map, find what use is made of those lands in southern Canada which are too dry even for the growth of wheat. In which provinces do you find them?

3. On the map find also the fruit-raising districts of Canada. In which provinces are they? What fruits are raised in Ontario that are not raised in the other provinces? Why is this possible?

4. Which province has the greatest amount of agricultural land?

5. Make a large map of southern Canada, and by drawing pictures or by pasting on cut-out pictures, or samples, show where the chief farm products are produced. Where a crop like wheat or apples is exported, show the route by which it is shipped out of Canada and the countries to which it goes.

MINING IN CANADA · 1. Re-read those parts of each Unit in this book which describe mining, and on a large map print in blue or black the names of the mining towns, and in red the name of the mineral mined near each. The map on page 132 will help you.

2. Refer to the Canada Year Book, or to some other reliable source, to find the five most important minerals in Canada. List these in the order of their importance and show what is done with each.

3. Compare the mineral map with the map of the physical regions of Canada on page 9. Which physical region has the largest number of minerals? What minerals are found in the western mountain regions? What are the only minerals found in the plains?

FISHING IN CANADA · 1. On a large map of Canada colour in blue the chief fishing grounds and print in the names of the fish caught. On your map show which fish are exported, and the countries to which they go.

2. Refer to the Canada Year Book to find out which province produces the greatest value of fish in a year.

CANADA'S TOURIST TRADE · 1. Draw a large map of Canada and on it show the chief tourist attractions of the Dominion. Railway folders will help you to do this.

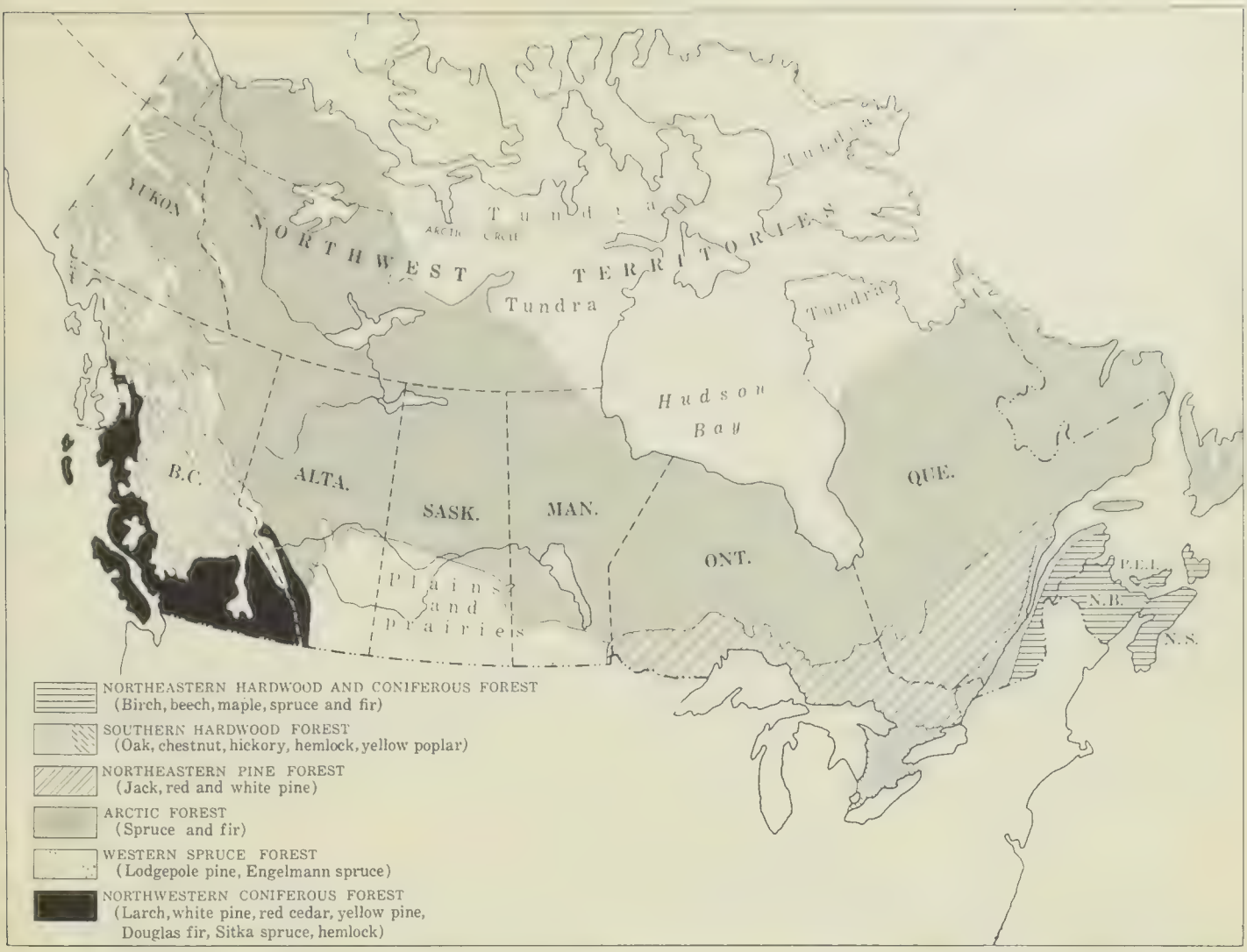
2. Some of you may prefer to make posters which advertise some one Canadian playground.

LUMBERING IN CANADA · Study and report on Canada's lumbering industry. This will include pulp and paper, paper products, sawmill lumber, shingles, cellophane, plastics, and furniture. You might divide the class into groups, each of which would report on one of these topics. Use the map on page 183 showing the forests of Canada, refer to any books or magazines you can find, and re-read those parts of each Unit which tell you about lumbering. Report to your class on what you find out.

MANUFACTURING IN CANADA · 1. In the same way report on some of the chief manufacturing industries in Canada. These include: iron and steel industries, flour milling, shipbuilding, and the manufacture of automobiles and textiles. Name and locate the places where the largest manufacturing plants are found. For each industry report on the raw products used, the route by which they are brought in, the source of power used, and what is done with the finished article.

2. By looking in stores, and at advertisements, etc., make a list of all the things you can find that bear the "Made in Canada" stamp. You will be surprised to see how long your list becomes.

TRANSPORTATION IN CANADA · 1. Canada's railways are among the best in the world. They reach from coast to coast and have many branch lines. Study the railway map on page 107 to dis-



The forests of Canada. Note carefully the location of the hardwood, mixed, and softwood areas.

cover those parts of Canada into which railways have not yet been built. From what you have learned about mining, farming, or lumbering in these regions, suggest where new railway lines are needed.

2. Canadians did much pioneer work in transport by air. Bush pilots carried prospectors, miners, trappers, and doctors, as well as mail and freight of many kinds, into the northern country, where there are neither roads nor railways. Study the map showing railways and compare it with the one showing air routes (page 109). What parts of the country which railways do not reach are served by air routes?

And so we have come to the end of the study of our country for this year. As you grow older you will learn more about Canada and how it is developing as the years go by. We have seen that Canada is a large, rich, and beautiful country. But in spite of its wealth and its beauty, it can grow into a strong and a great nation only as its people become strong, industrious, unselfish, and determined to help one another. Each of us, old or young, must play his part in developing our country. Each must be ready to do his duty so that Canada may always be the home of a free and a peaceful people.

Later we shall learn of other people living overseas and shall find out how they produce goods that we need to use. We shall then understand how we as Canadians can do our share to make the whole world happy and prosperous.

IX · Our Neighbour to the South

The Ambassador Bridge, between Windsor (right) and Detroit, links Canada with the United States.

THE UNITED STATES

THE COUNTRY AS A WHOLE

Our friendly neighbour to the south · Because the greater part of the population of our country is settled quite close to the international boundary between Canada and the United States, most of us are familiar with the United States. The people in adjoining parts of Canada and the United States do about the same kinds of work. They understand each other's problems, and understanding helps to make them friends. Many Canadians have friends or relatives south of the border and many have visited some part of "The States." These are not the only ways in which Canadians learn of the United States. Many of the books and magazines that we read come from there. Most important of all, many of the radio programmes to which we listen come from American studios. Trade with the United States also increases our knowledge of that country. For all these reasons, then, and many more, we are greatly interested in our friendly neighbour to the south.

Discovery and settlement · Even before Jacques Cartier sailed up the St. Lawrence, the eastern coast of the United States was sighted and touched at by explorers from Spain and England. While Champlain was exploring and trying to found a settlement in Nova Scotia, he took time to sail southwards along the New England coast as far as Cape Cod. In the far south, Spaniards had crossed over from the West Indies looking either for gold or for Indian slaves. One of these Spaniards, Coronado, went inland across the south-western states.

The first permanent English settlement was made in 1607 on the James River in Vir-

ginia. You will want to find out something of the story of Captain John Smith and the Indian Princess Pocahontas. Later, in 1620, the Pilgrims landed at Plymouth, Massachusetts, and began the settlement of New England. In 1634 a group of Roman Catholics under Lord Baltimore settled on the shores of Chesapeake Bay, while in 1682 William Penn came from England with a colony of Quakers to settle in Pennsylvania.

The English were not the only settlers along the east coast. On the Hudson River, and particularly near its mouth, there soon appeared a thriving colony of Dutch pioneers, while farther south along the Delaware were colonists from Sweden, and in Pennsylvania were Germans.

A "melting pot" of nationalities · It would take far too long to trace the growth of all the colonies. The dangers and difficulties were many. Because the settlers were used to different conditions in the old land, it was not easy for them to live and work together in the new land. It was a long time before they combined to form the United States, and still longer before they formed a united people.

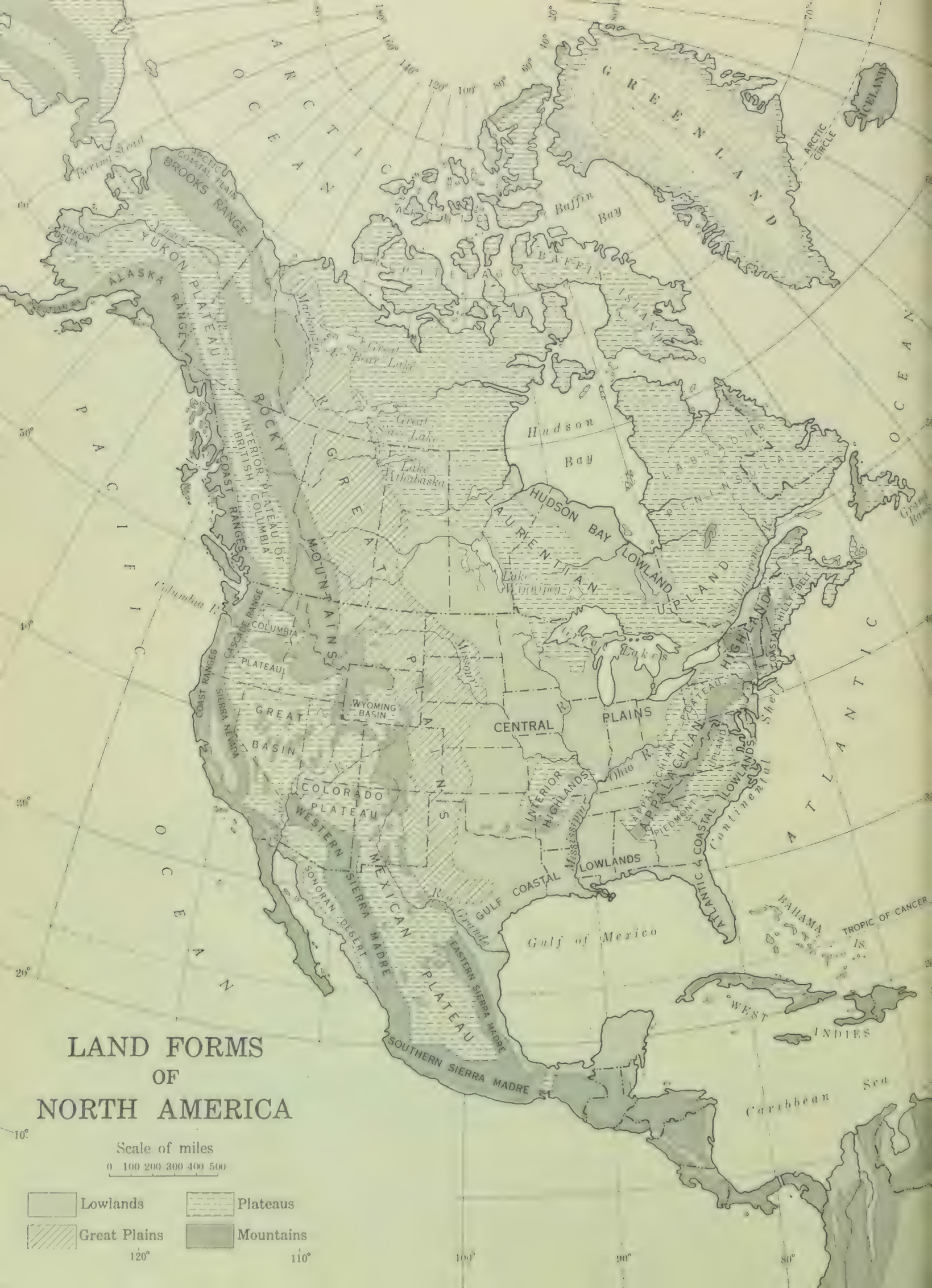
The United States has often been called a "melting pot" because people have poured into it from many lands all over the earth. Until the 1870's most of the immigrants came from Northwest Europe. Then, with the rapid industrial growth of the United States, there began a wave of immigration from the overcrowded lands of southern and eastern Europe, until in 1917 the United States had to pass immigration laws limiting the number of people who could settle in the country. However, the United States remains a land of opportunity for many of the peoples of the earth.

Comparison with Canada · Look at the map on page 186. You will see that nearly all the physical regions of Canada extend southwards into the United States. Thus the surface of the land in northern United States and southern Canada is much the same. This is one reason why the work of the people in adjoining parts of the two countries is also much the same.

The map on page 187 shows that another likeness between Canada and the United States is the distribution of rainfall. Notice that

An early view of the Massachusetts town of Plymouth. The boats in the harbour and the piers show that the sea played an important part in the life of this seaport.

Courtesy of State Street Trust Company, Boston



LAND FORMS OF NORTH AMERICA

Scale of miles

0 100 200 300 400 500

Lowlands

Plateaus

Great Plains

Mountains

The distribution of rainfall in the United States.

(1) the eastern half of the United States, like the eastern half of southern Canada, has plenty of rain for crops; (2) the western part of the interior plains in both countries is much drier; and (3) the Pacific Coast from California northwards is the rainiest part of both countries.

The great difference in climate between Canada and the United States is in temperature conditions. The United States is farther south, and so it is a warmer country.

The United States proper is not so large as Canada, but it has very many more people. Its population is around 140,000,000. Compare this with our population. Try to discover why there should be such a difference as you study further. Instead of being divided into provinces and territories as Canada is, the United States is divided into forty-eight states. The states are shown on the map on pages 188–189.

The greatest industrial country in the world · Because of its size and its great differences of climate, soil, and surface, the United States has a wide variety of living conditions. Its size, wealth, and abundance of natural resources and the work and inventive genius of its people have brought prosperity to the nation. As you study the various regions of the country, try to discover why the United States has become the greatest industrial country in the world.

MAP STUDY · 1. Examine the eastern and western coasts of the United States. Which has the greater number of bays and inlets? Which has the greater number of rivers draining into the sea? Which has large lowland areas or coastal plains bordering the sea?

In each case, the answer is the east coast. The map shows that bordering the Gulf of Mexico is another coastal plain. These coastal plains are made up of soil brought by the many rivers from the mountains farther inland on the east coast. This material was first laid down beneath the sea. Later the inner part of this plain rose above sea level while the outer part remained below sea level as a continental shelf.

The west coast is high and mountainous almost to the water's edge. There are few bays and a very narrow continental shelf.

2. Trace the Appalachian Highland, which extends southwards from eastern Canada.

3. Notice how the Laurentian Upland extends south of the western end of Lake Superior. This region, as you would expect from your knowledge of the Laurentian Upland in Canada, has great mineral wealth.


PACIFIC OCEAN
BRITISH COLUMBIA
ALBERTA
SASKATCHEWAN
CANADA
WASHINGTON
OREGON
IDAHO
MONTANA
NORTH DAKOTA
SOUTH DAKOTA
WYOMING
NEBRASKA
NEVADA
UTAH
COLORADO
KANSAS
CALIFORNIA
ARIZONA
NEW MEXICO
OKLAHOMA
TEXAS
MEXICO
Gulf of California
Seattle
Spokane
Portland
Salem
Boise
Helena
Butte
Bismarck
Pierre
Sacramento
San Francisco
Carson City
Salt Lake City
Cheyenne
Denver
Fresno
Los Angeles
San Diego
Phoenix
Tucson
Santa Fe
El Paso
Oklahoma City
Fort Worth
San Antonio
Regina
Winnipeg
Edmonton
Lincoln
Omaha
Topeka
Wichita
Mount Rainier Nat. Park
Glacier Nat. Park
Yellowstone Nat. Park
Yosemite Nat. Park
Mt. Whitney 14,496
Death Valley
Grand Canyon
Columbia R.
Snake R.
Missouri R.
Yellowstone R.
Arkansas R.
Colorado R.
Gila R.
Pecos R.
Rio Grande
Red R.
Sierra Nevada
Cascade Range
TROPIC OF CANCER
UNITED STATES
Statute miles
0 50 100 200 300 400 500 600
over 10,000′
3,000′–10,000′
1,000′–3,000′
0′–1,000′
★ Capitals of countries
○ Capitals of states and provinces


Hudson Bay
LABRADOR
ONTARIO
QUEBEC
Lake of the Woods
Lake Superior
Duluth
Ottawa
Montreal
MAINE
Portland
Quebec
St. Lawrence R.
Lake Michigan
Lake Huron
Lake Ontario
Lake Erie
Toronto
Niagara Falls
Buffalo
NEW YORK
Albany
Boston
MASS.
Concord
Montpelier
VT.
N.H.
Hartford
CONN.
Providence
R.I.
C. Cod
Scranton
New York
Trenton
Madison
Milwaukee
Lansing
Detroit
Chicago
Cleveland
PENNSYLVANIA
Pittsburgh
Harrisburg
Philadelphia
N.J.
MD. Baltimore
Dover
DEL.
Delaware Bay
Annapolis
Washington
Peoria
ILLINOIS
INDIANA
OHIO
Columbus
Springfield
Indianapolis
Cincinnati
WEST VIRGINIA
Charleston
Richmond
Chesapeake Bay
Norfolk
Louisville
Frankfort
Ohio R.
St. Louis
KENTUCKY
VIRGINIA
Nashville
Mt. Mitchell 6,684
NORTH CAROLINA
Raleigh
C. Hatteras
TENNESSEE
Charlotte
Chattanooga
Memphis
SOUTH CAROLINA
Columbia
Atlanta
Tennessee R.
Savannah R.
Mississippi R.
Birmingham
Macon
Charleston
ALABAMA
GEORGIA
Savannah
Montgomery
Jackson
MISSISSIPPI
LOUISIANA
Baton Rouge
Mobile
Tallahassee
Jacksonville
New Orleans
FLORIDA
Tampa
Miami
BAHAMA ISLANDS
Gulf of Mexico
Key West
Florida Strait
Habana
CUBA
HISPANIOLA
PUERTO RICO
JAMAICA
ATLANTIC OCEAN
BERMUDA
TROPIC OF CANCER

4. Find the Central Plains and the Great Plains. The Great Plains are sometimes called the "High Plains." As in Canada, so here, between these two plains areas there is a more or less clearly marked escarpment along the eastern edge of the Great Plains.

5. Find the Interior Highlands. This region of plateaus and hills once stood up like a large island when the surrounding plains were still below the sea.

6. Trace the course of the Mississippi River from its source to the Gulf of Mexico. This great river is the most important feature of the geography of central United States. Locate and trace the course of its chief tributaries: the Missouri and the Ohio.

7. As in Canada, there are several ranges of high, rugged mountains in western United States. Find the Rocky Mountains, the Sierra Nevada, the Cascade Range, and the Coast Ranges. These mountains in the west are younger and higher than those in eastern United States. Notice, too, that west of the Rockies there is a high interior plateau as in Canada. Find the various divisions of this plateau region: the Great Basin, the Colorado Plateau, and the Columbia Plateau. Is the Great Basin a lowland as you would think from its name? Notice the important rivers which flow through these high land areas: the Columbia, Colorado, and Rio Grande.

8. Locate the two western lowlands: one in Central California, which is called the Valley of California; and one west of the Cascade Range, which is called the Puget Sound Lowland.

THE NEW ENGLAND STATES

The states included in New England are Maine, New Hampshire, Vermont, Massachusetts, Connecticut, and Rhode Island. Locate these states on the map on pages 188–189. Which is the largest? the smallest? Which has no coast line? Which states border on Canada? Which state borders on two different provinces? Notice how the mountains of Canada continue on into New England. What is the general name given to these mountains?

Comparison with eastern Quebec · The rolling hills and fertile valleys of eastern Quebec continue into the New England States. However, as your map shows you, the mountains of New England are higher and the valleys are narrower than those farther north.

The climate, too, is much the same, with cold winters and hot summers. Of course, as you travel southwards, the summers are, for the most part, warmer and the winters are not quite so cold. Everywhere there is plenty of

A small dairy farm near Boston. New England has many dairy farms, both small and large, which help to supply its busy cities with milk, cream, and butter.

James Sawders

Fishing boats at Boston's big fish pier. Notice that some of the pushcarts are filled with fish.

rain in summer and, except along the coast, heavy snow in winter.

As you might expect, the work of some of the people in New England is much the same as that of the people in New Brunswick and Quebec. However, in New England, half of all the people who work are engaged in manufacturing.

Farming · Like the Eastern Townships and New Brunswick, New England has little fertile land. Oats, barley, and buckwheat, and corn for ensilage, are grown, but most of the valley bottoms are used for growing vegetables. Different sections specialize in certain vegetables. For example, Maine is famous for its potatoes.

Other special crops are grown in the New England States. In the Connecticut Valley much of the best land is used for growing tobacco. In Vermont, maple syrup and sugar are produced in quantity. On Cape Cod, in Massachusetts, cranberries grow in bogs like those of Nova Scotia, and blueberries are also cultivated there. Fruit is better for hilly land than are field crops, and so you will find many orchards in New England, especially apple orchards.

On the hill slopes, cattle and sheep are pastured and hay is raised to make possible a large dairying industry which supplies the many large cities with milk and other dairy products. Near all the larger cities of New England there are many market gardens.

Fishing · From the time of the earliest settlement, fishing was important in New England. Farmers trying to make a living

James Sawders

Looking down into the pit of a Vermont marble quarry. This state is famous for its marble.

from the thin soil of the hillsides near the coast were forced to depend on fishing to help in feeding their families. The same cool currents, plentifully supplied with food, tempt fish near the New England shores, as they do off the shores of the Maritimes. Many fishermen go as far as the Grand Bank for cod, but mackerel and lobsters are caught along the shore. The most important fishing ports are Gloucester and Boston. Boston is the greatest market for fresh fish in the United States.

One of the numerous power sites in New England supplying hydro-electricity for manufacturing.

By Ewing Galloway, N. Y.

Forests and lumbering · Before the white man came, the hill slopes of New England were heavily forested. Great stands of pine covered the drier ground, while beech, birch, maple, and hemlock were found in the hollows. To clear land for farms, the settlers cut down these forests. In sawmills built on the many small streams planks were cut as well as beams and shingles for houses; in other mills timbers for shipbuilding were prepared. Still later, in larger mills, particularly in New Hampshire and Maine, pulp and paper were made to help to satisfy the nation's ever-growing needs.

But in many places the farms on the cleared hillsides had only poor, thin soil, and when the richer lands of the central and western states were opened up, whole families moved west, deserting the New England farms. Since that time, much of the land has been returned to forest, and it is rather surprising to find how close to large towns and cities the forest comes.

Mining · New England has many small deposits of minerals, but they are too small to be worked profitably. However, the rocky hillsides are the source of much valuable building stone—slate, marble, and granite. Vermont has great marble quarries and slate quarries, and granite is quarried in all the New England States.

Manufacturing · It is in manufacturing that New England excels; in fact, some parts of this group of states are regular hives of industry. There are factories of all sizes and types, making hundreds of different products. Let us see why this should be so.

The early New England farmers and their families had to make many things for their homes and for their work. As time went on and fathers trained their sons in handwork,

James Sawders

Weaving woollen cloth on a power loom in a textile mill. Find the warp and woof threads.

James Sawders

A shoe-factory operator using a nail-driving machine to fasten the sole of a shoe to the upper.

New England came to have many skilled workers. Mills for grinding grain into flour and meal and sawmills for sawing logs into boards were built on the banks of streams because the streams provided water power. So it happened that New England had water power and skilled workers to make good use of the machines for weaving, spinning, and other manufacturing when they were invented.

Boats and, later, railways brought in raw materials, and with its water power and its skilled workers, New England became the first great manufacturing section of the United States. Today it is one of several important manufacturing sections.

One of the best-known types of manufacturing in New England is the textile industry. New England leads all sections of the United States in woollen manufacturing, and for many years it manufactured more cotton goods than any other section of the country. In recent years, however, the South has become the great leader in cotton manufacturing.

The boot and shoe industry, shipbuilding, and woodworking are all important industries. The variety of products which are manufactured from metal is almost endless, and they vary all the way from small, simple things like pins and needles to big machines made up of hundreds of different parts.

Tourist and resort business · Many people from the crowded and warm areas like to spend their summer vacations in New England, which is cooler than much of the United

Mountain scenery and sports attract many winter tourists to northern New England.

Library of Congress, Photo by Wolcott

Fairchild Aerial Surveys, Inc.

This aeroplane view of Boston and its island-sheltered harbour shows you that the city has a long water front and excellent railway connections.

States partly because it is farther north and partly because it has cooling breezes from the ocean. Tourists also like the beautiful scenery in the mountains and along the rocky coast. Large tracts of forest land have been reserved for permanent playgrounds by the state governments. The many lakes and small streams make these wooded areas delightful for camp sites, and attract winter visitors also. Entertainment of tourists is an important kind of work in New England.

Boston, the "hub" of New England · If you look at a map of New England showing the roads and railway lines, you will know why Boston has earned the name the "hub" of New England. All the roads and railways meet here, like the spokes of a great wheel. The city is built around a splendid harbour in a basin, or low-lying land, surrounded by low hills. It was one of the earliest settlements and has many old and historic buildings. Some of its streets are as narrow as those of

Where the people of the United States live.

Quebec. It has hundreds of different industries, but the most important are the making of textiles, clothing, and shoes. These industries began early to satisfy the needs of the people, and have continued to grow to supply the increasing population of this busy region. Many of the raw products used in the manufacturing industries of New England enter through Boston, which imports more wool and leather than any other port in the United States. Boston is also an important centre for air lines which cross the North Atlantic to Europe.

SOME QUESTIONS TO ANSWER · **1.** What difficulties have New England farmers had to face? What other occupations have they followed to aid them in making a living?

2. Why did fishing grow to be an important industry in New England?

THINGS TO DO · **1.** Re-read carefully pages 184–194 and find out in how many ways New England is like eastern Canada and in how many ways it is different. Study your maps carefully. Compare the population of the New England States with that of our four eastern provinces. What reasons can you find for the difference? See the map above.

2. New England has had many poets and authors who have written about life there—Longfellow, Whittier, Emerson, Hawthorne, Louisa M. Alcott. Try to find and read some of Longfellow's poems or Alcott's *Little Women.*

3. In magazines or newspapers, try to find pictures or advertisements of New England. Plan a trip you would like to take to New England. Decide how you would travel and mark your route on a map. Draw a sketch map to show (*a*) the mountains you would cross; (*b*) the rivers you would see; and (*c*) the cities you would visit.

Find out from your teacher what you would have to do at the *immigration* and *customs* office when you leave Canada and when you return. Ask her to explain why such offices are needed. Write an account of your trip.

THE MIDDLE ATLANTIC STATES

The Middle Atlantic States are New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, and West Virginia. Find these states on the map on pages 188–189 and trace the boundaries of each. Which of these states have no seacoast?

If you look at the population map on page 195, you will see that many people live in the Middle Atlantic States, but that some parts are more densely populated than others. You will find too, as you study further, that there are great differences in how the people live. If you could fly over the region low enough to see what was going on, you would see crowds of people hurrying about in great cities like New York and Philadelphia; forest rangers in the Appalachians; vacationists enjoying themselves at some of the coastal resorts; farmers in the valleys between the mountains; lumbermen in the Adirondacks; miners in the great coal regions; and fishermen here and there along the coast. All in all, this region, like New England, has a great variety of life because there is a great variety of soil, surface features, and climate.

The Barge Canal Belt across New York State and the principal cities of that belt.

Two important river valleys · To the south and east of the mass of mountains called the Adirondacks are river valleys which have been important water-level routes of transportation since the earliest days and are still the greatest outlets westwards around the Appalachians to the Great Plains, and north to the St. Lawrence Valley.

Locate the Hudson River on the map on this page and trace its course northwards. What tributary of the St. Lawrence drains the northern end of this valley? Before the days of the white man, the Indians used this trail. Now roads and railways line both sides of the river valley. The Hudson itself is navigable for good-sized steamers as far as Albany. The Hudson-Richelieu route, with the largest city in the United States at one end and the largest city in Canada at the other end, has always been of great importance to both countries. Turn to the map on pages 188–189 and, using the scale of miles, find the distance between Montreal and New York.

Find the Mohawk River, the tributary of the Hudson which enters from the west, just north of Albany, New York. This route, too, has made history. If you glance south on the map, you will see that this is the only route from the Atlantic to the Central Plains that does not have to cross the mountains. Because of this a canal system, known as the Erie Canal, was built connecting New York with Buffalo on Lake Erie. The New York State Barge Canal, a deeper and wider canal, follows the old "canal belt" today. Along it, wheat, iron ore, and other products from the Great Lakes region reach New York and the waiting ships, while raw products from overseas and manufactured goods can make the return trip westwards. Railway lines and roads now follow this important valley route.

The Atlantic Coastal Plain · On the map on page 186 locate the strip of coastal plain that stretches all the way from Cape Cod to the

Courtesy of New York Central System

A stretch of the easy transportation route provided by the valley of the Mohawk River.

southern tip of Florida. This Atlantic Coastal Plain is young in the history of the continent because it was uplifted from beneath the waters of the Atlantic much more recently than were the mountains or plateaus. In contrast to the mountains, hills, and valleys of New England, this plain is low and gently sloping, with shallow water offshore.

The soil of the coastal plain is generally very sandy, with clay in some places, and it is well suited to vegetables and certain fruits that grow on creeping vines, for it is easily worked and well drained. This plain is a truck-farming region. Truck farms are like market gardens, but they are much larger. It is usual for farmers in a district to specialize in one particular crop. Cabbages, lettuce, tomatoes, potatoes, onions, spinach, strawberries, melons, and many other truck crops grow on thousands of acres of land in the coastal plain. Near Norfolk, Virginia, there are fields and fields of peanuts.

As you can imagine, with so many large cities near by, all these vegetables and small fruits find ready sale. Of course, those in the southern part of the region ripen first and are shipped north in special refrigerated trains. Some of this produce comes to Canada during the late winter and early spring. Canning factories take care of all the surplus produce. Many of the well-known brands of canned vegetables, pickles, and soups come from the Atlantic Coastal Plain.

On the whole, there is little manufacturing in this region, and there are few large cities. However, the soil has some use other than for farming. The sand in many places is used in

Gathering spinach for market on a large coastal plain farm in Virginia.

From Ewing Galloway

Courtesy of Maryland Conservation Department

Dredging for oysters in Chesapeake Bay. On smaller boats long-handled tongs are used.

By courtesy of Liggett & Myers Tobacco Company

A tobacco field in the Piedmont. The truck at the right is carrying hogsheads of tobacco to market.

the manufacture of glass, and the clay is used for making pottery.

In the deep bays along the coastal plain fishing is carried on, and tiny fishing villages are sometimes found in the shelter of one of the long sand bars. Oyster farming is famous in Chesapeake Bay. Ask your teacher to explain what oyster farming is.

Along the seashore of the Atlantic Coastal Plain are miles and miles of beautiful sandy beaches which have become playgrounds for the tired city workers from New York, Philadelphia, and other crowded cities. The most famous of these coastal playgrounds is Atlantic City, on the coast of New Jersey.

The bathing beach at Atlantic City. This playground is easily reached from New York City.

James Sawders

The Piedmont · On either side of the Appalachian Mountains is a region of high upland. On the east it is called the Piedmont, which means "at the foot of the mountain." Locate the Piedmont on the map (p. 186). In which states is it? Here the land is rolling or hilly, with much hard rock appearing above the soil.

Dairying is important along the hill slopes of the Piedmont and there are many apple orchards, but the most famous agricultural product of the region is tobacco. From the earliest days of the colony, Virginia produced much tobacco, and Virginia tobacco is still known the world over. For thousands of farmers in southern Virginia and the adjoining part of North Carolina, tobacco is the great money crop.

In summer the big leaves of the tobacco plants make the fields look green. The leaves ripen a few at a time on each plant and must be picked as they ripen. This keeps the farmers and their families busy. Tobacco leaves are hung on racks in a shed to dry out. This is called "curing," and every farm has one curing barn and some have from fifteen to twenty-five. The soils in this section are suited to the kind of tobacco that is used for pipe-smoking and for cigarettes.

The fall-line belt · Many rivers rise in the Piedmont Belt or in the mountains to the west of it. At the point where these rivers leave the hilly Piedmont to flow out across the level coastal plain there are falls and rapids. Thus the boundary between the Piedmont and the Atlantic Coastal Plain has come to be called the *fall line*. As you might expect, cities have grown up at the fall line on the larger rivers, not only because of the water power to be developed there but because the falls mark the "head of navigation" on each river. Find Trenton, Philadelphia, Baltimore, and Richmond on the map on pages 188–189. All these are fall-line cities.

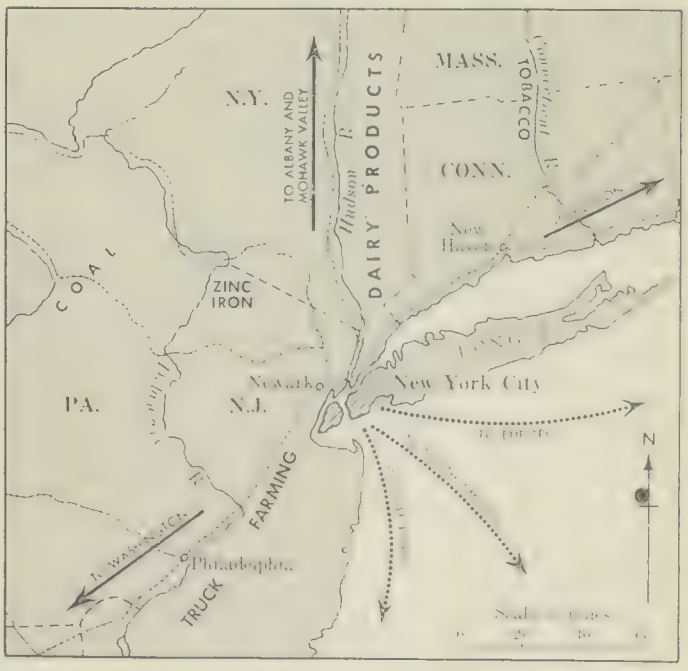
These falls in the Potomac River are among those which give the fall line *its name*

Three great cities · Some of the largest and most important cities of the United States are in the Middle Atlantic group of states. Among them are New York and Philadelphia, which rank first and third respectively in population among the cities of the United States, and Washington, which is the national capital.

New York City. To anyone who has never visited a really large city, New York is almost unbelievable. It seems impossible to realize that about seven and a half million people (considerably more than half the population of Canada) are crowded into so small a space. The great harbour with its miles of docks and its hundreds of boats of every kind, the skyscrapers and parks, the hurrying crowds of people, the subways and surface traffic, the shops and restaurants, the banks and theatres, and the hotels and apartment houses and flats—all these things make New York something to remember. But how does it happen that so many people have gathered in this one place? Let us try to find out.

Turn back to page 76 and review the reasons why Montreal has grown to be a large city. All these reasons for growth apply to New York, and in addition, it has advantages which Montreal lacks. New York is a port like Montreal, but with a very much larger space for docks. New York's harbour never completely freezes over, and it can therefore be used all the year round. Of all the United States ports, only Boston is nearer to Europe. Much of the growth of New York has been due to its location at the ocean end of the two great trade routes—the Mohawk route and the Hudson-Richelieu route. Through the harbour of New York passes a

New York City and its surroundings.



Sawders from Aerial Explorations, Inc.

New York City from the air. In the centre may be seen the heart of the city, with its many skyscrapers. At the left is the Hudson River, and at the right is the East River.

very large share of the imports and exports of the whole country.

New York City is the greatest single manufacturing city in the United States, and with the cities in northern New Jersey, especially Newark, Jersey City, Paterson, and Elizabeth, it forms the greatest manufacturing area in the United States. Here are found thousands of factories which turn out an enormous variety of products, including clothing, foods, electrical supplies, machinery, and paints.

What are the reasons why this is such a great manufacturing area? Think of three things—workers, raw materials, and markets. Because of its millions of people the area has workers for its factories and also a huge home market for its manufactures. Then, too, it is a perfect place for distributing finished products to outside markets when you consider the railways and shipping lines that connect this area with other parts of the United States and with countries all over the world. This transportation also makes it easy to gather together the raw materials for manufacturing.

PHILADELPHIA. Philadelphia is not a city that just grew. It was carefully planned by William Penn, the Englishman who started the Quaker colony which later became the state of Pennsylvania. William Penn and his friends believed that their "City of Brotherly Love" would become a great city, and they laid it out in oblong blocks with straight streets.

Philadelphia is the second largest city in the Middle Atlantic States, and the third in size in the whole country. It is located at the head of navigation on the Delaware River. The main part of the city is on the peninsula between the Delaware River and the Schuylkill River.

Across the Delaware is the city of Camden in New Jersey, and downstream from Philadelphia is Wilmington, the largest city in

A map of Philadelphia. How do its surroundings compare with those of New York?

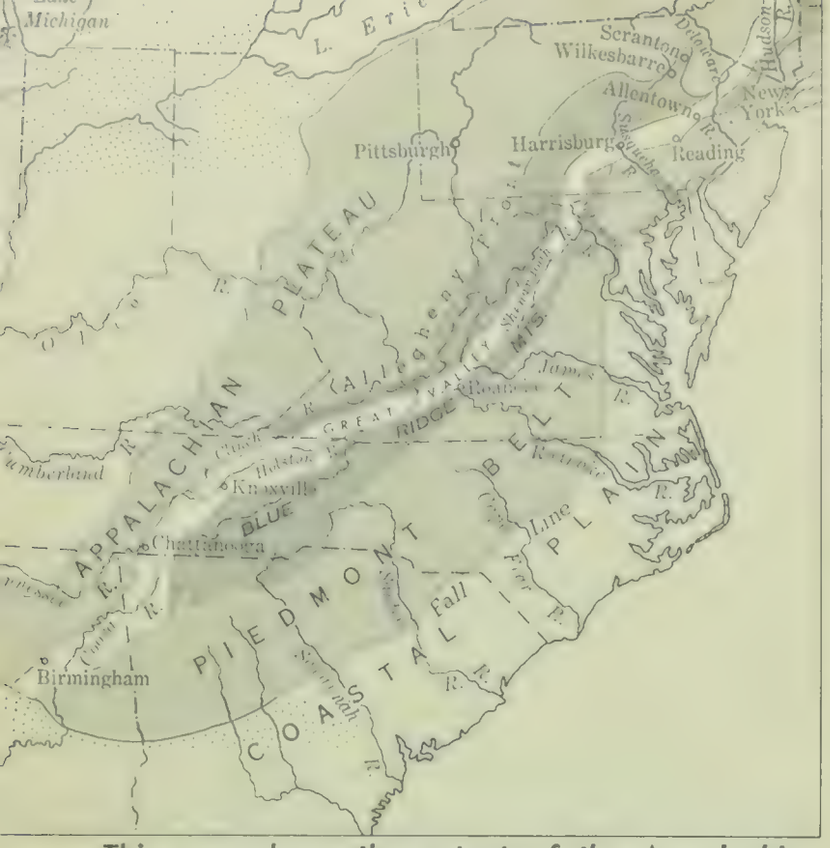
the state of Delaware. All these cities together with a number of smaller places make up an important manufacturing centre. The area is best known for its shipyards. In fact, the Delaware River is one of the greatest shipbuilding centres in the whole world. The steel used in the building of the ships comes largely from steel mills in Pittsburgh and other cities in western Pennsylvania. Among Philadelphia's manufactures are those of wool and leather goods. It imports hides, skins, and wool from many parts of the world.

WASHINGTON. Unlike New York and Philadelphia, Washington is not a manufacturing city. It is the capital of the United States, just as Ottawa is the capital of Canada. It is not in any one of the states of the Union, but is in what is known as the *District of Columbia*, an area set aside for the needs of the capital city. Here is the Capitol, or Houses of Parliament; the many buildings for the various departments of the government; and the White House, which is the home of the President, who is at the head of the government of the United States. Washington is a very beautiful city which has been carefully built according to plan to make it worthy of its place as the capital city of a great nation.

The Appalachian Mountains · Study the map on page 202 carefully and trace the Appa-

Washington, the capital of the United States. The building with the round dome, in the foreground, is the Capitol. Many of the other large buildings house government offices.

Fairchild Aerial Surveys, Inc.



This map shows the extent of the Appalachian Mountains region and of regions which border it.

lachian Mountains to the west of the Piedmont. Through what states do they stretch? This region is one of long mountain ridges with narrow valleys between. Find the Blue Ridge Mountains on the east. These are beautiful wooded slopes. Find also the westernmost ridge, which is called the Allegheny Front.

A peaceful barnyard scene on a dairy farm in the northern part of the Great Valley.

By Ewing Galloway, N. Y.

Between the two ridges bordering the Appalachians you will notice that there are rivers flowing north or south for some distance before they find a way through the mountain wall. Do you remember how this happened in the Rocky Mountain Trench in British Columbia? Here there is no deep, narrow canyon between towering peaks, but a fairly wide, beautiful valley stretching all the way from New York State to Alabama. It is known as the *Great Valley*. You can easily understand that every possible use is made of this low, fertile valley. Railway lines follow it from end to end, and there are many good farms. Mixed farming is general, but in the northern part dairying is more common, while in the southern part corn and wheat are leading crops, and hogs, beef cattle, and dairy cows are raised. The dairy products and the meat find easy sale in the many cities to the north and east. The central part of the valley specializes in apple-raising.

Much of the soil of the valley was formed from limestone rocks, and the Great Valley owes a great deal of its wealth to its limestone rock and soil. Such soil contains a quantity of plant food and so is very fertile. Another use of limestone is in connection with making cement. Do you remember that cement is manufactured near Montreal from clay and limestone rock found near by? In the northern part of the Great Valley, chiefly in Pennsylvania, there are many cement plants, which make cement easily available for building purposes in the large cities near by. Cement is also used in making roads, and so the limestone of the Great Valley is used in its roads.

You will remember from what you learned about the great steel works at Sydney, in Nova Scotia, that limestone is used with coal or coke in smelting iron. Coal and iron are found in many places in and near the Great Valley in Pennsylvania. With limestone at hand, too, iron can therefore be smelted in the

One of the many steel plants to be seen in the iron-and-steel district of Pennsylvania. On what kinds of transportation do you think this plant depends?

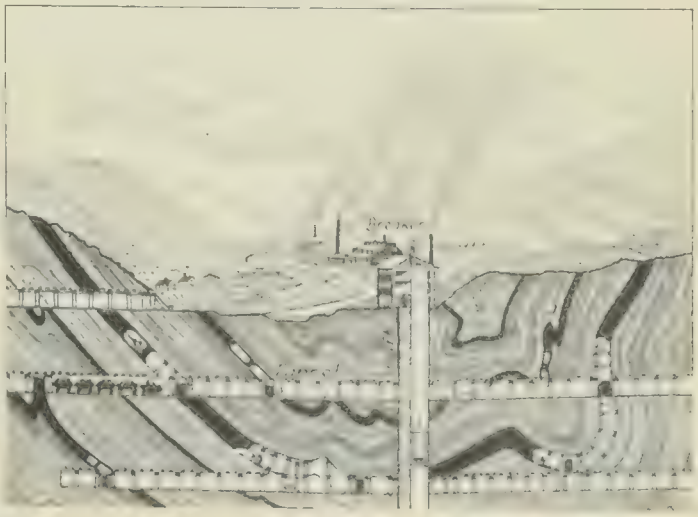
Great Valley. Many iron and steel works use the smelted iron, one of the largest being at Bethlehem, Pennsylvania.

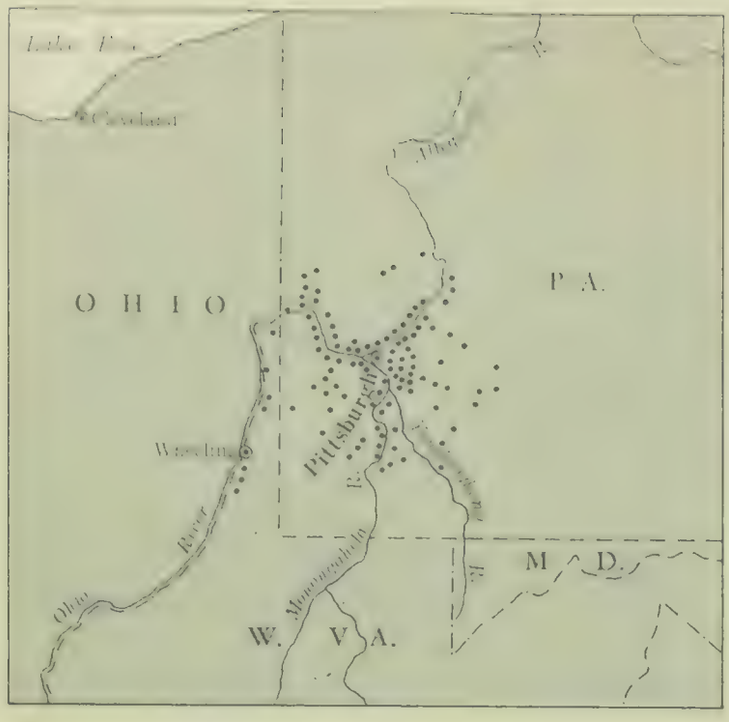
If you were travelling through the valley, you would find that near the northern end there are many cities and towns clustered closely together. Coal is the reason for this. Scranton and Wilkes-Barre are the two chief cities of this region. The coal mined here is not like the soft, or bituminous, coal found in Nova Scotia. It is hard coal, or anthracite. Because it burns with little smoke, it makes good fuel for stoves and furnaces. Much of the furnace coal used in Ontario and Quebec comes from Pennsylvania. This is because the coal fields of that state are closer than those of New Brunswick and Nova Scotia. It costs less, therefore, to haul the coal from Pennsylvania.

The Appalachian Plateau · If you were travelling through the region of the Appalachian Plateau, you would probably think you were among mountains and wonder why it was called a plateau. The hilly region west of the Appalachian Mountains is called the Appalachian Plateau because long ago it really was a plateau. Since that time, wherever streams have crossed the high plateau, they have cut deep valleys into the rocks and have changed the high plain into a hilly upland.

Coal resources. If you try to discover what kinds of work are carried on in the northern part of the Appalachian Plateau, you will soon learn that mining and manufacturing are the most important industries

A diagram showing how mining is carried on in an anthracite-coal mine.





Pittsburgh is located at the centre of a large cluster of cities and towns.

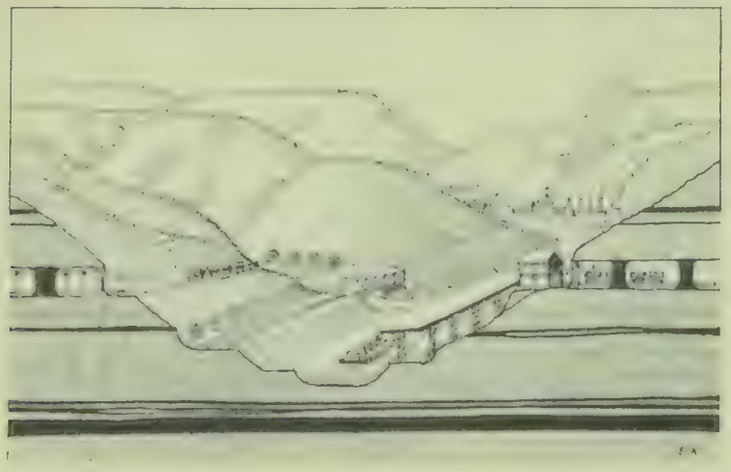
Library of Congress, Photograph by Siegel

Coal barges going through a lock in a river on the way to a steel mill.

there. On the map of Pittsburgh notice the clusters of dots along the rivers that meet at that city. Under large areas of this part of the plateau there are rich deposits of coal. Now you should know why there are so many cities and towns around Pittsburgh.

The coal found in this region is soft coal. What is another name for soft coal? The seams, or layers, of coal are flat like the other layers of the plateau, and where the river valleys have cut through the coal layers, or seams, the coal is left at or near the surface.

A diagram of a soft-coal-mining valley. Compare this with the diagram on page 203.



Here it can easily be dug out and sent down the hillside in little cars to the river boats or railway cars waiting below. The soft coal mines of Pennsylvania and West Virginia provide fuel to make steam power for thousands of mills and factories in the northeastern part of the United States.

Soft coal makes very good coke. Coke is made by heating the coal without air in coking ovens. The coke, you will remember, is used with limestone and iron ore in the great blast furnaces where iron ore is smelted.

When you think of this region, try to picture coal in railway cars moving along the tracks which follow a river; coal in huge barges drawn or pushed by puffing tug boats; coal miners going by, grimy from their hard work in the mines; rows of miners' dingy houses along the bottom of a valley.

PITTSBURGH. On the point of land where the Monongahela and Allegheny rivers join to form the Ohio, the settlement of Pittsburgh began around old Fort Duquesne. Many pioneers used the Ohio River as a water route to the Central Plains, and with their

The business centre of Pittsburgh, at the junction of two rivers, is well named "The Point."

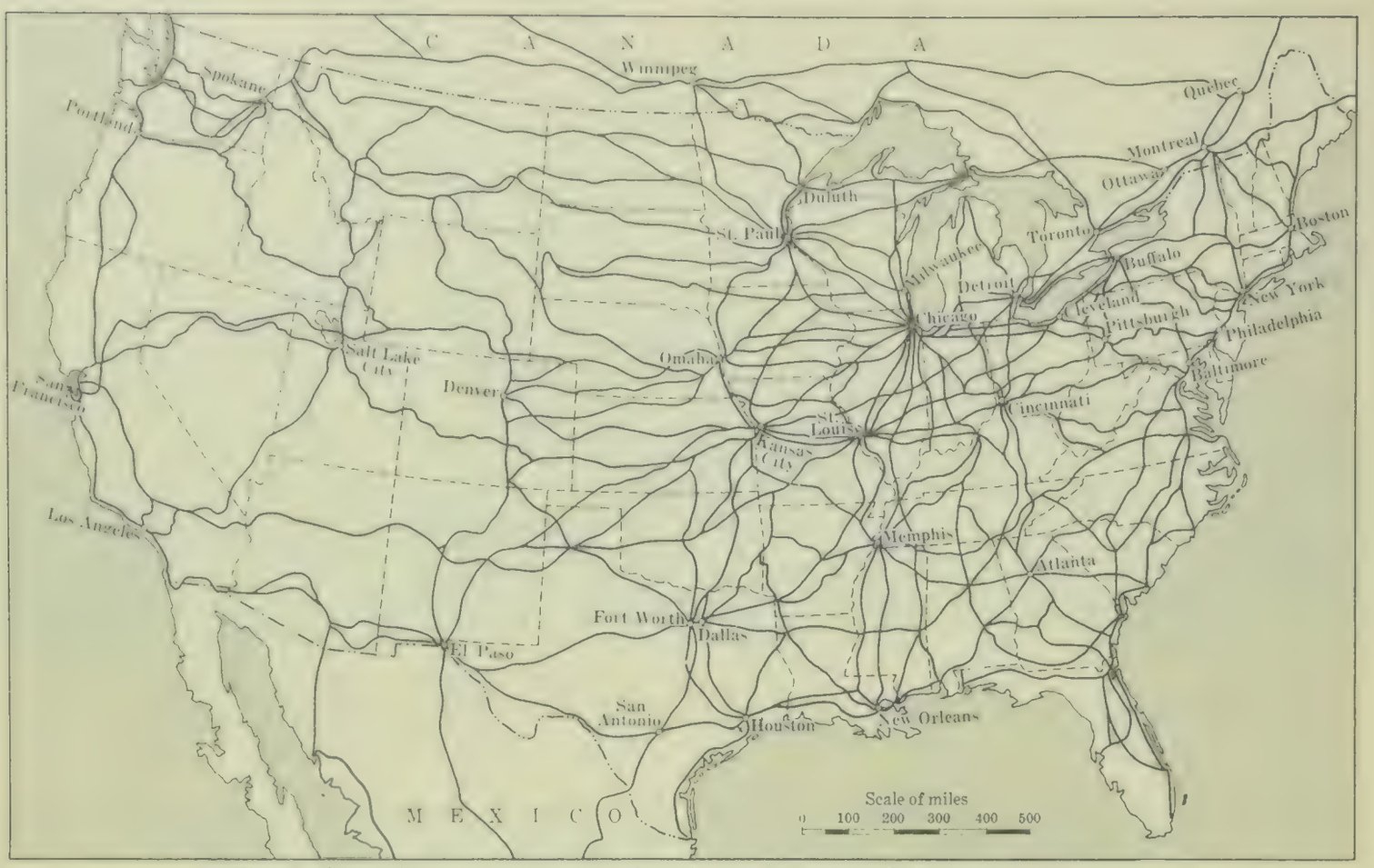
coming, the business of the settlement increased. Some people stayed; and as the neighbouring parts of the plateau were settled, Pittsburgh became the business centre of the area because it was so easy to reach by way of the river valleys. Roads and railways follow these river valleys, so that Pittsburgh seems to be at the centre of a spider's web of transportation routes. Its location, in addition to the presence of coal in the area near by, has made Pittsburgh one of the busiest cities in America.

Wherever there is an abundance of coal, iron and steel industries grow up, provided enough iron can be brought in cheaply. There is no iron near Pittsburgh, but away to the west, near the shore of Lake Superior, there are huge supplies of iron ore. This is loaded on to great ore boats, brought to Cleveland and other lake ports, and then shipped overland to Pittsburgh. In return for the iron, Pittsburgh sends back coal.

Oil and natural gas. Coal is not the only fuel found in the Appalachian Plateau. This was the first region in the United States to develop oil wells. Although much of the oil from this field has been used, production is still continuing. Oil is shipped by tank cars and trucks, but by far the greatest amount travels underground by pipe lines. The pipe lines from this and other oil fields form a network over all of eastern United States from the Gulf of Mexico to the Great Lakes. You remember that one pipe line reaches Sarnia in Ontario.

Just as natural gas was found near the oil fields in Alberta, so it is here. Much of this gas, too, travels underground by pipe lines, supplying cheap lighting and fuel for a large area.

Farming. In many parts of the plateau farming is of little importance. This is to be expected, since much of the land is rough and hilly and unsuitable for farming. Grass can grow on the hillsides, though, and grass will feed cows which furnish the milk and butter so much needed in this busy industrial section. In the northern part of the region potatoes grow well, and also buckwheat, which will grow even where the land is



The railway lines and principal railway centres of the United States.

poor. Farther south, corn is grown to supply food for both people and livestock.

The Canal Belt · You have already read of the New York State Barge Canal route and its effect on the growth of New York. Now look again at the map on page 196. The route of the canal begins at New York, follows the Hudson northwards in its deep valley between beautiful wooded hills to Albany and Troy, and so to the Mohawk, which it follows westwards past Schenectady and Utica to the canal itself. This leads on past Rochester to Buffalo on Lake Erie. A branch canal extends to Oswego on Lake Ontario. The canal is not wide, and is deep enough only for barges, tugs, and small boats. It seems peaceful and unimportant, but the amount of freight, chiefly heavy or bulky goods, using this route is great. Of course roads and railways follow the canal, carrying a still greater volume of trade.

Look at the population map on page 195. You will see how many people live along this canal route. Eight of the largest cities in New York State are in the Canal Belt—Buffalo, Niagara Falls, Rochester, Syracuse, Utica, Schenectady, Albany, and Troy. All these cities are manufacturing centres, and it is common to find each city or town in this area specializing in one or two products.

It is not hard to understand why the Canal Belt has so many manufacturing centres. Think again of the three factors necessary to manufacturing—workers, markets, and raw materials. Explain how the Canal Belt has each of these.

Buffalo. At the western terminus of the Barge Canal route is Buffalo, a large city with more than half a million people. Why do you think it is called the "Gateway of the West"? Look at the map on this page, and you will see that Buffalo is not only at the

western terminus of the Barge Canal route, but that it is a port on Lake Erie and has rail connections with all the central part of the United States.

Buffalo has many important industries because of its location. Wheat from western Canada and the western United States is ground into flour. Coal from the Appalachians and iron from the Lake Superior region are used in factories manufacturing many kinds of iron and steel products. In slaughtering houses and meat-packing plants the stock coming east from the Central States becomes food for the city dwellers of the east. Buffalo is fortunate to have cheap electricity from Niagara Falls for its factories.

Courtesy of American Airlines

Buffalo and part of its harbour. Notice the many grain elevators and manufacturing plants.

THINGS TO DO · 1. How many of the following can you name? Locate each.

a. The largest city in North America.

b. Two important coal-mining centres in the northern Appalachians.

c. The capital of the United States.

d. A seaport on the Delaware.

e. The "Gateway of the West."

f. A city at the junction of the Allegheny and Monongahela rivers.

g. The city at the head of ocean navigation on the Hudson River.

2. Explain the meaning of the following terms:

a. coking coal
b. smelters
c. blast furnaces
d. coal seam
e. terminus
f. oil pipe line
g. anthracite
h. bituminous coal
i. plateau
j. fall line

3. Some years ago two Montreal schoolboys paddled in a canoe from Montreal to New York. On a map trace the waterways they followed on their 400-mile journey. They returned home by air. Do you think that their homeward route followed back over their southward route?

QUESTIONS TO ANSWER · 1. Choose the best ending or endings for each of these sentences:

a. Market gardening is carried on along the Atlantic Coastal Plain because

the soil is fertile.
the soil is easily worked.
there is little else to do.

b. The New York State Barge Canal route is important because

it passes through a densely populated area.
it passes through an area having many industries.
it provides an easy route to the Central Plains and the west.

c. New York has become a larger city than Boston because

it has a better harbour.
it has a greater supply of raw materials.
it has an easier route to the west.

d. The Great Valley has many railway routes because

it has a dense population.
it has level land between mountain walls.
it has fertile land.

THE SOUTHERN STATES

The Southern States include North and South Carolina, Georgia, Florida, Alabama, Mississippi, and Tennessee east of the Mississippi River; and Louisiana, Arkansas, Oklahoma, and Texas west of the Mississippi. Find these states on the map.

If you look on pages 188–189, you will see that southern Florida and southern Texas are not far north of the tropic of Cancer, where the noonday sun shines vertically in June. This means that these Southern States have very hot summers, while even in December and January they do not have the cold weather, ice, and snow that we know. Because of this great difference in climate, life in these states is very different from life in Canada, and we shall find that many crops can be grown in the Southern States which cannot be grown in Canada.

MAP STUDIES · In working out these studies, look at the map on page 186 and the one on pages 188–189.

1. The Atlantic Coastal Plain continues southwards through four of the Southern States. Which states are they?

2. The Gulf Coastal Plain is a part of four other states. Which states are they?

3. Which four of the Southern States border on the Mississippi?

4. Through which four states does the Piedmont Belt extend?

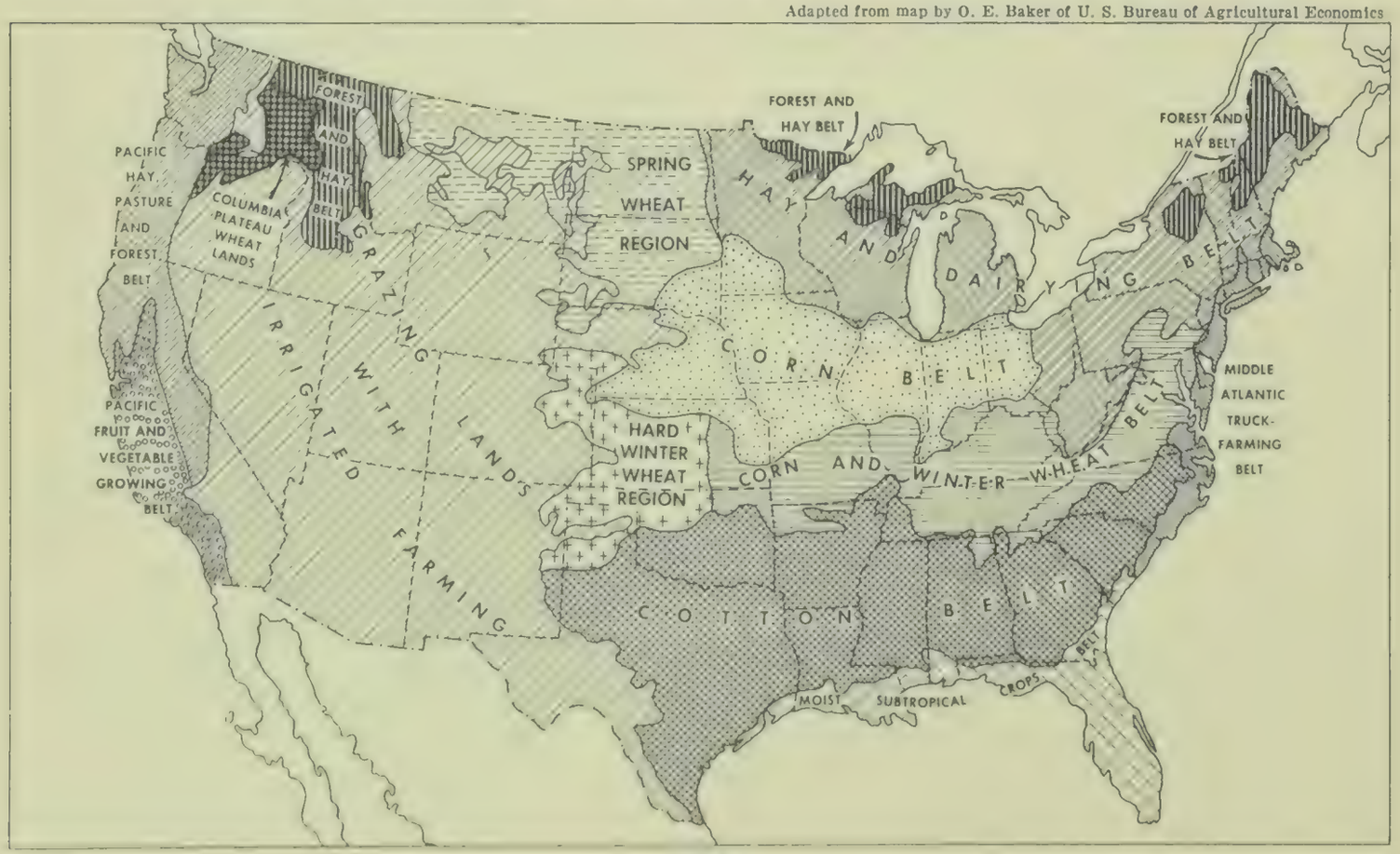
5. Find Mount Mitchell. This is the highest peak of the Great Smoky Mountains, which are the highest mountains of the Appalachians.

6. Trace the course of the Tennessee River. Notice how it follows the Great Valley and then cuts through the Appalachian Plateau. This river is navigable along much of its course.

7. The largest state in the United States is in the Southern States. What state is it?

The agricultural regions of the United States. What region includes the greater part of the Southern States? Parts or all of what other regions are included in this group of states?

Adapted from map by O. E. Baker of U. S. Bureau of Agricultural Economics



Agricultural Adjustment Agency Photo by Harmon

Picking cotton is slow, hard work. These pickers are a Texas tenant farmer and his wife.

Farm Security Administration Photograph by Marion Post

A waggon-load of cotton, drawn by two mules, leaving the field at the end of the day.

Cotton and the Cotton Belt · Cotton is by far the most important of all fibres; in fact, more cotton is produced than all the other fibres, such as wool, flax, and rayon, combined. The United States exports more cotton than any other country in the world.

The areas in which cotton grows are limited by temperature, rainfall, and the type of soil. On the map opposite trace the northern limit of the Cotton Belt. Cotton must have a growing season of 200 days. Rainfall must be plentiful, but it must come when the plants are young and growing quickly, and not when the bolls are opening. Notice that the line marking the southern and eastern limits of the Cotton Belt does not reach the coast. There is too much rainfall and too much swampy land along the coast for the growth of cotton. In the west, on the other hand, the line marks the limit beyond which there is not enough rain; and so the crop must be irrigated. Cotton must also have rich soil. It grows best on the rich lands along the Mississippi known as "bottom lands," and in a belt of rich black soil in Texas.

The cotton plant grows to a height of about two feet. It has a flower, something like a hollyhock, which is white or yellow and later turns pale pink and then red. After the flower is dead, a small pod, or boll, develops and grows to be about the size of a walnut. When it is ripe, the boll bursts, showing an astonishing amount of white cotton fluff or lint.

From the time the fields are ploughed in February until the last picking in December, cotton requires a great deal of care, and much of this work is done by hand. The seeds are planted close together in rows, but when the little plants come up they must be thinned, or chopped out, with hoes. During the long, hot summer, the weeds must be kept down by cultivating and hoeing. In August the bolls begin to burst, and for the next four months every possible worker—man, woman, and child—is in the fields picking the cotton.

Most of the workers are Negroes. Few own the land on which they work. The large farms, or plantations, are owned by white people, and the Negroes either hire out on the plantations or work as croppers or renters, paying a part of their crop for the right to live and work on the plantation. Machines for picking cotton have been invented, but they are not used much as yet.

When the cotton is picked, it is poured from the pickers' big sacks into waggons

U.S.D.A. Photograph by Forsythe

A bale of cotton leaving the gin. What was done to the cotton while it was at the gin?

By Ewing Galloway, N. Y.

Baskets of Georgia peaches in a crating shed. They will be shipped to northern markets.

drawn by mules, or into a truck, and taken to the nearest cotton gin. Here a machine, also called a gin, separates the lint from the seeds and pods. The cotton lint is then pressed and made into big bundles, or bales, each weighing 500 pounds. The bales are wrapped in hemp or jute sacking and bound with metal bands.

Cotton growers try to make the cotton crop pay in every way by using all that is left of the plant after the lint is removed. From the hulls, the poor lint or linters are separated and used for twine and lampwicks; the hulls themselves are used for cattle feed; the seeds are used for oil, cotton-seed meal, and fertilizer; and the stalks are used to make rough paper or paper boards.

For many years cotton was the great money crop on thousands of Southern farms and plantations. No wonder it was called "King Cotton!" When there was a good crop and people all over the world wanted to buy American cotton, plantation owners had good returns for the care and labour they gave to the crop. But whenever cotton prices dropped or the market for cotton became smaller, the Southern farmers had little or nothing else to fall back on for cash income.

Cotton growers also had their troubles in growing the crop. One of these is the *boll weevil*. This is a beetle which ruins the lint in the boll. Boll weevils have cost cotton growers millions of dollars. For years the growers have been fighting them in all kinds of ways, and now these insects do much less harm than they used to.

Another difficulty comes from the cotton itself. Some people call it a *robber crop*. It requires the best soil, and then it takes so much food value from the land that the soil either needs much fertilizer or becomes quite useless.

Cotton farmers have begun to grow other crops so that they are not so dependent on cotton as they once were. Corn is grown as the chief food crop, although this, too, is a "soil robber." It is fed to pigs, and also to cattle and chickens. Sweet potatoes, velvet beans, cow peas, and peanuts are also grown. These fodder crops are soil builders instead of soil robbers, for they put plant food back into the soil. Where the land is high and dry in the east, wheat or oats may be grown, and in the west, where less rain falls, wheat or Kafir corn is raised. Kafir corn makes good stock feed. In Georgia peaches are an important crop. Many of the peaches sold in

eastern cities of Canada in early summer come from Georgia.

Sugar-cane · This crop takes the place of cotton along the lower Mississippi, chiefly in Louisiana. Sugar-cane is a tall grass that looks much like corn. It is grown not from seed but from joints of the stalk, which are planted in rows, about six inches below the ground. When the canes are ripe, the tops and leaves are cut off and the canes are cut down, tied into bundles, and sent to the sugar mills. Many sugar plantations have their own railways to carry the cane. In the sugar mills, the cane is squeezed between heavy rollers to take out the juice. From the heavier, darker juice comes molasses. White sugar is made by boiling and refining the juice.

Rice · It is a surprise to many people to learn that a large amount of rice is produced in the United States. Most of it is grown on the low, level land along the coast of Louisiana and Texas. In countries like Japan and China, work in the rice fields is done by hand, but in the United States machinery is used.

Rice is a grain, but, unlike wheat, it needs a great deal of water, for it grows in flooded fields. Usually the grain is planted in drills by a machine, much as wheat is. When the plants are a few inches high, water is pumped slowly on to the fields, where banks of mud keep it from running off. Shortly before the grain is ripe, the water is allowed to drain away, so that by harvest time the fields are dry enough to allow harvesting machines to cut the rice much as wheat is cut.

Later, threshing machines are used to strip off the seeds, or kernels of grain, from the stalks. The grain then goes to the mills to be husked and cleaned and made ready for sale.

Citrus fruits · Oranges, lemons, and grapefruit, which are called *citrus fruits*, are produced in Florida and in southern Texas along the Rio Grande. Citrus fruits are easily damaged by frost, and so they are grown only

This machine both harvests and threshes rice. As the grain goes through the thresher, the rice seeds are separated from the stalks and poured into bags.

From Ewing Galloway, N. Y.

where there is little danger of it. Fruit farmers fear cold winds from the north, and often place smudge pots in their groves for protection. If a report of frost comes from the Weather Bureau, these smudge pots are lighted and give off smoke, which prevents too much heat from escaping from the ground and saves the fruit and trees.

The citrus fruit trees do not all blossom or bear their fruit at one time. Often blossoms and green and ripe fruit can be seen at one time on the same orange tree.

Many of the oranges, lemons, and grapefruit used in Canada come from Florida, while grapefruit and grapefruit juice come from Texas.

Other vegetables and fruits · In addition to these crops, which we cannot raise in Canada, others which we know very well are grown along the Atlantic Coastal Plain, in Florida, and along the southern part of the coastal plain of Texas—celery, tomatoes, cabbages, beans, lettuce, strawberries, green peas, and others.

You will remember that the truck farmers of the coastal plain of the Middle Atlantic States supply large quantities of vegetables to the people living in the crowded cities of the north. Can you think why the farmers of the South Atlantic Coastal Plain, who are farther away from these markets, have a share in supplying them? The farther south one goes, the longer is the part of the year when vegetables can be grown outdoors. So after the last harvest of northern truck crops in the fall and before the first spring harvest, the Southern farmers do a big business supplying winter-grown vegetables to the north.

Tobacco · You may remember that we found much tobacco growing in the Piedmont in Virginia. Much more is found in the Carolinas, and the crop is also important in Georgia. West of the mountains, tobacco is also raised in large amounts on the lowlands of Tennessee. The great specialty of the section is cigarette tobacco.

Forests and forest products · The eastern states of the South form one of the most important lumbering regions in the United States. Along the Atlantic Coastal Plain in Georgia and South Carolina, and in Louisiana and Mississippi, many pine trees are found. These are mostly yellow pines, and so the forests are called the Southern pine forests. Yellow pine is one of the best kinds of softwood lumber. Most of it is cut for lumber, but recently ways have been found to use it in making paper. Pulp and paper mills are increasing in the South.

These piles of pulpwood at a Southern mill will be manufactured into fibre board.

James Sawders

Turpentining in a Southern forest. The gashes are cut V-shaped to make the resin flow.

Photo by U. S. Forest Service

U. S. Army A.A.F. Photo

Steel works in Birmingham. Like Pittsburgh, Birmingham is the centre of an area noted for the production of iron and steel.

The pines are also a source of turpentine. To produce turpentine, gashes are cut through the outer bark of the pines. A small spout or trough is then pushed in at the lowest point of the gash. Under it is hung a metal cup in which a thick, gummy liquid called *resin* collects. The resin is then gathered in barrels and taken to a building where it is heated. The resin gives off the liquid turpentine and leaves behind a thick substance called *rosin*. Turpentine is used in making paints and varnishes, and rosin is used in making soap, paper, linoleum, and many other things.

In the southern Appalachians softwood trees are found on the higher slopes, and hardwoods, such as oak, hickory, ash, and maple, are found lower down. Lumbering has been carried on for many years, and some of the hillsides are almost bare. This is a region where forested mountainsides cannot be turned into farm lands after the trees have been cut down. The slopes are too steep, and the soil washes away too fast. The best way to use such slopes is to keep forests growing on them to hold the soil and to provide a steady supply of lumber.

To keep forests from being destroyed, the United States Government has taken charge of many tracts of land in the mountainous parts of the country. These lands are called national forests. In the national forests the government is planting young trees on many of the bare cut-over slopes. This work of replacing forests is called *reforestation*. Lumbering companies are allowed to cut only full-grown trees. At all times there are trees of all ages growing up, and so the supply never gives out.

A great iron and steel district · On the map on pages 188–189 find Birmingham in Alabama. Iron and coal are found near by. Remember that there is much limestone rock in the Appalachians. What important industry do you think is located here? No district in the United States, not even Pittsburgh, is so well situated for manufacturing iron and steel as is Birmingham. The Birmingham

district supplies much of the coal and many of the iron and steel products used in the South.

Southern oil fields · The United States produces more petroleum than all the other countries of the world put together, and more than one half of all this oil comes from the southern states of Texas, Oklahoma, Louisiana, Arkansas, and Mississippi.

Some of the crude oil goes to refineries in railway tank cars, but most of it is pumped through underground pipe lines, some of which carry it as far as refineries on the southern shores of Lake Michigan and Lake Erie.

The petroleum industry has brought so much business to the oil districts of the South that towns and cities have grown very fast. The ports of Texas and Louisiana have become great shipping centres for crude oil, which is shipped to Atlantic coast refining centres, and for petroleum products, which are exported to other countries.

Sulphur · Along the coastal plain of Louisiana and Texas, sulphur is found in large quantities. Sulphur is shipped from this region to many countries. Much of it comes to Canada, where it is used for making "sulphite pulp" in our pulp mills.

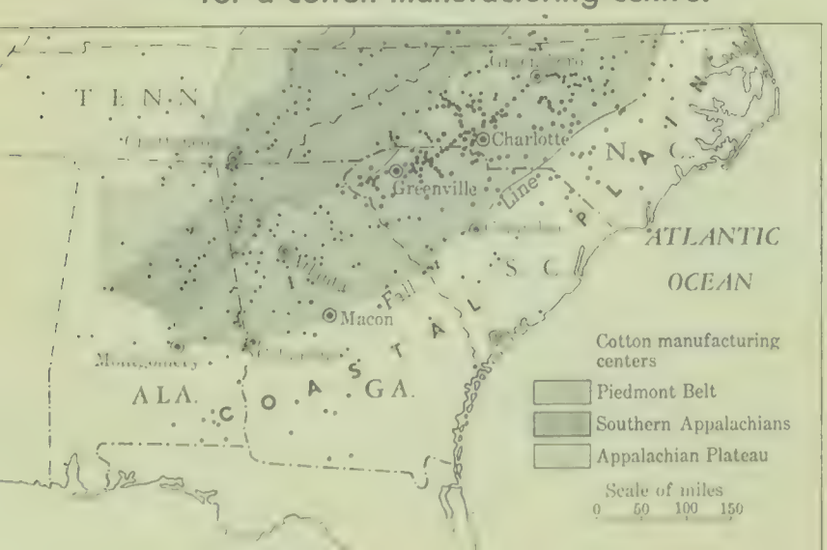
Manufacturing · Within recent years, the amount of manufacturing carried on in the South has increased very greatly. The growth of the textile industry is an example. On the map below notice all the dots in the Piedmont region of the Carolinas and Georgia. These stand for centres where there are cotton mills. Many of the mills are small, but some are very large. In many of them rayon goods and goods of mixed rayon and cotton are manufactured.

For many years the New England States did most of the cotton manufacturing for the whole country, but now they rank second to the South in this industry. The most important reasons why the Southern Piedmont leads in cotton manufacturing are because (1) it is in the Cotton Belt, where the raw material is produced; (2) it has an abundance of water power from the many streams which flow over its hilly surface, and many hydro-electric plants have been built which provide relatively cheap electricity; (3) it has cheap labour and a mild climate; (4) it has new factories and up-to-date machinery.

The South also has many food-processing industries, and tobacco factories, oil refineries, mills that produce cotton-seed cake and oil, and a growing iron and steel industry.

The Tennessee Valley Authority · Find the Tennessee basin on the map below. This is all the land drained by the Tennessee River and its tributaries. It is an area rich in natural resources—good farm lands, coal, iron ore, forests, and water power. It is in this area that the United States Government has

Each dot on this map of the Piedmont Belt stands for a cotton-manufacturing centre.



The Tennessee basin and the big TVA dams on the Tennessee and its tributaries.

set up a project known as TVA (Tennessee Valley Authority) in order to make greater and better use of all the resources of the Tennessee basin. This project was the world's first experiment in developing all the resources of a great river basin.

Big dams have been built on the Tennessee River and its tributaries. These dams regulate the flow of the river waters and greatly lessen the danger of floods. To check soil erosion and also to help to prevent floods, the bare slopes of the hills and mountainsides have been reforested with plantings of young trees. At the dams power plants have been built to make hydro-electricity, and long lines of wire carry electricity to cities, towns, factories, and farms. Manufacturing is increasing in the Tennessee basin with the power that is now available to it.

The Mississippi Valley · "Mississippi" is an Indian word which means "great stream." See if you think it has been well named. On the map of the United States on pages 188–189 try to trace with your finger the *drainage basin* of the Mississippi. To do this, you must keep just beyond the source of all the rivers the waters of which drain into the Mississippi. You will discover that the drainage basin stretches to the Appalachians on the east, almost to the Great Lakes on the north, into Saskatchewan and Alberta, and to the Rocky Mountains on the west.

From all this great area drained by the Mississippi, soil is being constantly washed into the river. From Cairo, Illinois, where the Ohio joins the Mississippi, to its mouth, the land on both sides of the river has been built up as a great flood plain by the river. The soil is deep and very fertile. Soil is also being carried out into the Gulf of Mexico, where a long finger-like delta is being built up.

From time to time, great floods send torrents of water into the Mississippi channel.

A string of river barges loaded with bales of cotton on their way to Memphis.

Often these floods do terrific damage, ruining crops and washing houses, barns, and farm animals downstream. To keep back the flood waters of the river, dikes called *levees* have been built. They follow the river on both sides, mile after mile, and are often as high as thirty feet. Some of the levees are a half mile or more from the river itself in order to allow the river to spread out over a larger area when it is in flood. Behind the levees the fertile fields stretch away lower than the river.

These levees, like the dikes in the Netherlands, must be constantly watched to see that no hole is made by any burrowing animal. Even so, during a flood the water sometimes cuts through a levee, covering the low fields behind for many miles.

Before railways were built, the Mississippi was an important highway of travel and transportation on which steamboats carried passengers and goods. After the railways came, there was a long time when there was not much traffic on the Mississippi. Then the channel of the river was deepened and straightened all the way upstream to Minneapolis and St. Paul in Minnesota, and the same thing was done to the Ohio from its mouth to Pittsburgh. With the making of these channels, river traffic has come back

Fairchild Aerial Surveys, Inc.

An air view of New Orleans showing the big bend in the Mississippi at this point.

and is increasing. This present-day traffic is in cotton, crude oil, coal, and other bulky goods, which are carried in strings of barges, pushed or towed by other boats.

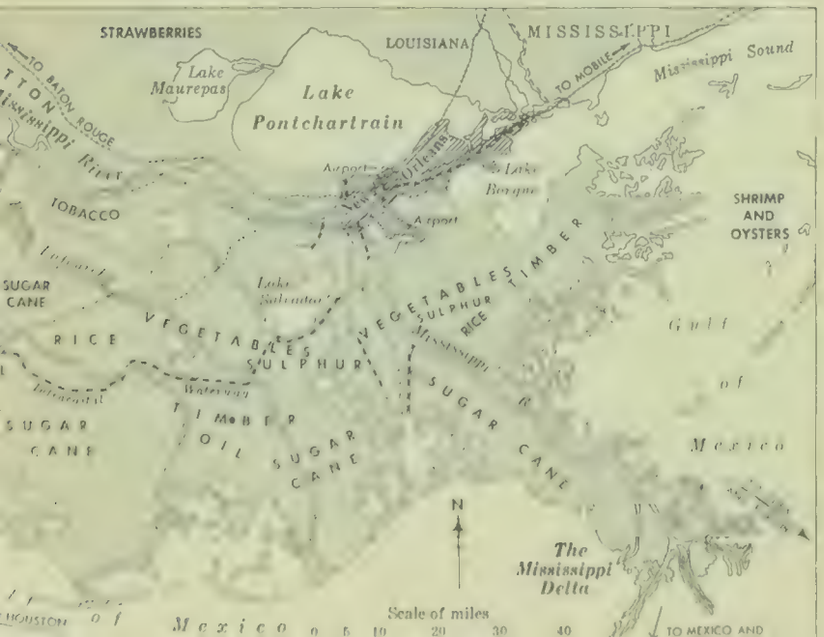
New Orleans · In the early days the Mississippi Valley belonged to France. Among the settlements made by the French was one named New Orleans, about a hundred miles upstream from the mouth of the river. Today New Orleans is the largest city of the South and the most important of the Southern seaports.

From the map you can see that New Orleans is located between a big bend of the Mississippi and Lake Pontchartrain, which is really an arm of the Gulf of Mexico. There are two port sections—an outer one along the Mississippi, and an inner one along the navigation canal leading to Lake Pontchartrain. Ships from all over the world load and unload at the wharves in New Orleans. Some of the imports are to be used in the city itself, but many go by train and river barge to other parts of the South and to other sections of the United States. Among the exports are products of every section of the Mississippi basin, for New Orleans is the great Southern gateway to the interior of the United States because of its location at the southern end of the Mississippi Valley. Because of its location near the Gulf coast, New Orleans is one of the chief ports for trade with the countries south of the United States.

Like other great ports, New Orleans is a manufacturing centre since, through its shipping and railways, it can get raw materials and market finished products easily. New Orleans is also a very important shipbuilding centre.

Other cities · Its location on the Mississippi in the north-central part of the Cotton Belt has made Memphis, in Tennessee, a railway

New Orleans and its surroundings. What does the map tell you about the city's industries?



The inner end and turning basin of Houston's deep-water channel for large ships.

hub, a busy river port, and a great centre for handling business between the North and the South. But Memphis is best known as a cotton-distributing centre. It is through Memphis that much of the raw cotton for the mills of eastern Canada is shipped. See the picture on page 215.

Houston and Galveston, in Texas, are the greatest cotton-exporting ports in the world. They are also important oil-exporting ports. Houston is by far the larger city of the two and is the greater railway and manufacturing centre. Galveston's location on an island, with only one large bridge for trains and automobiles connecting it with the mainland, has kept it from becoming a great railway centre. The reason why Houston won the race is much the same as that which made it possible for Montreal to outstrip Quebec. Houston is farther inland than Galveston, and ships will always carry their cargoes inland as far as possible before unloading.

Atlanta, in Georgia, is one of the principal railway centres and distributing points for the South.

Florida, the tourists' paradise · It would never do to leave the Southern States without visiting Florida in wintertime. The January climate in Florida is rather like the July climate in the Maritime Provinces except that there is more sunshine in Florida. Thousands of visitors spend the winters in the bright sunshine and fresh breezes of Florida, particularly along the beaches. In the many resort centres are hotels, cottages, and tourist camps to care for the needs of tourists. Among the tourists are many from Canada who prefer the warm weather to Canada's snowstorms, bracing air, and winter sports.

QUESTIONS TO ANSWER · How many of these questions can you answer?

1. Where do the early peaches sold in the markets of eastern Canada come from?
2. What is the most important iron and steel centre of the South?
3. Through what city is much raw cotton shipped to the mills of eastern Canada?
4. Where do Canadian pulp mills obtain their sulphur?
5. From what two Southern states can Canadian grocers buy tomatoes in January?

GIVING REASONS · Give as many reasons as you can why

1. Visitors flock to Florida during the winter rather than during the summer.
2. The farmers of the southern Appalachians have a difficult time.
3. New Orleans has become the largest city of the South.
4. The Mississippi is building its delta outwards into the Gulf of Mexico.
5. The South has become the leading cotton-manufacturing section of the United States.
6. Cotton and corn are sometimes called "robber crops."

EXPLANATIONS WANTED · Explain the difficulties of:

1. A cotton planter.
2. A fruit grower in Florida.
3. A farmer of the lower Mississippi.

MEANING OF WORDS · Write sentences to show you understand the meaning of the following words:

Levee	Lint	Cropper
Bottom lands	Linters	Fertilizer
Boll	Cotton gin	Delta
Boll weevil	Erosion	

The Central States include states both east and west of the Mississippi River. To the east are Kentucky, Indiana, Ohio, Michigan, Illinois, and Wisconsin. To the west are Minnesota, North Dakota, South Dakota, Iowa, Nebraska, Missouri, and Kansas.

The Central States have not been settled so long as the eastern states. One hundred years ago this part of the United States was almost empty, yet today there are millions of people in the Central States, and the region ranks high in both agriculture and manufacturing. What brought so many people to this region, and how do they make a living?

MAP STUDY · **1.** Find the thirteen Central States on the map on pages 188–189. Be sure to find all of Michigan.

2. Which Central States border on the following lakes or provinces?

Lake Erie	Lake Michigan	Manitoba
Lake Huron	Lake Superior	Saskatchewan
	Ontario	

3. Most of the Central States region is level or rolling land, but there are four areas of highlands. Find these on the map.

Early exploration and settlement · The upper part of the Mississippi Valley was explored in 1673 by Father Marquette, the French missionary, and by Louis Joliet, the French-Canadian trader, who went southwards to the mouth of the Arkansas River. The French traded for furs with the Indians on the plains, but their only settlements were trading posts protected by forts.

During the last quarter of the eighteenth century English settlers from the Atlantic coast began to come into the Mississippi Valley by land, most of them through the Cumberland Gap in the southeast corner of Kentucky. Most of these early pioneer families expected to make their living by farming. In Kentucky, Ohio, Indiana, and southern Illinois they found the land covered with forests of hardwood trees. When the difficult work of clearing the land was done, the settlers found that the soils were good and that their crops did well. As more settlers arrived, more land was cleared, and forests were replaced by fields of grain and pasture lands.

The settlers who moved into central Illinois and across the Mississippi River found prairies instead of forests. Only along the streams were there any trees to speak of. Some settlers were discouraged and turned back to the forested lands, for they thought that land without trees would be poor for crops, and they needed wood for fuel and building material. Those who stayed and ploughed up the grasslands were rewarded, for the prairie soils were much richer than the soils farther east. As news of the richness of the prairies spread back to their friends and relatives, more and more settlers poured through the Cumberland Gap. Settlers who pushed west beyond St. Paul, Minnesota, were astonished to discover that there were pioneers ahead of them who had come from the north, from the Red River Valley of Canada. The day of "The West" had begun.

The chief food-producing region of the United States · The story of farming in the Central States is a story of men working in partnership with nature; of men learning to use the soils and the climate of a great stretch of plains to produce huge quantities of grain, meat, and other foods.

Nature has helped the farmers of the Central States in four ways:

1. The surface of the land in the greater part of the Central States is level or gently rolling, which makes it easier to plough, plant, and harvest than would be the case on rough land; it is land well suited for the use of farm machinery.

2. The soils are rich, and rich soils mean the best of crops.

3. The yearly rainfall in by far the greater part of the Central States is more than 20 inches, which is considered enough for most crops.

4. The growing season is from four to six months in length, and this is long enough for the kinds of crops which provide large quantities of food for people and feed for livestock.

The Corn Belt · Trace the limits of the Corn Belt on the map on page 208. As in the case of the Cotton Belt, this does not mean that corn is the only crop grown, but it does mean that corn is grown on almost every farm and that it is the most important crop of the region. The United States stands first among the countries of the world in the production of corn, and by far the greater part of the entire crop comes from this region.

Why is the Corn Belt so favourable for the growth of corn? First of all, the soil is fertile and provides food so that the corn grows very tall, often higher than a man's head. The soil is deep, which allows long, strong roots to form to hold the stalks upright. The climate is favourable. The hot days and warm nights send the corn stalks shooting up several inches in twenty-four hours. Corn needs much moisture to keep its long leaves green. There are frequent thundershowers in the Corn Belt, usually in the afternoon or at night, so that the corn loses little of the precious sunshine. The land is level or gently rolling, and this is also good for corn, which must be kept free of weeds. Level land and loose soil permit cultivating to be done by machine until the plants are large enough to shade the ground, when the growth of weeds stops.

If we visit a farm in the Corn Belt, we shall find buildings that are large and well-kept. The house is well-built and has a cellar and

Agricultural Adjustment Agency Photo by Harmon

The large, well-kept farm which is the scene of our visit in the Corn Belt.

double windows like our houses in Canada, for the winters are very cold. We see a row of trees to the north and west, which protects the house and barns from the cold winter winds. The barns are large, and there are silos and many sheds for storing machinery and tools. The farmer shows us the corn cribs where the corn is stored after it has been husked.

As you may imagine, the Corn Belt farmer is a very busy man. He must not only work early and late most of the year but he must

If we visited the farm in the fall, we should see husked corn being loaded into storage bins.

Photo by Jim Mitchell

Farm Security Administration Photo

Most Corn Belt farmers keep cows and raise some meat animals, especially hogs.

plan his work for the year carefully, since work not done at the right time may cause a big loss.

When we visit the farm late in July, the fields are green with the tall corn that grows in perfect rows in any direction that we look. We learn that it is not the same variety of corn that we grow in Canada, with the exception of that grown in the southwestern part of the Lake Peninsula in Ontario. Nearly all Canadian corn, whether grown for table use, for canning, or for ensilage, is cut green. In the Corn Belt, most of the corn is allowed to ripen on the stalk and is often picked after the first frost comes. The ripening is possible because of the longer growing season and the greater summer heat.

Corn is not the only crop on the farm. We learn that this farm also grows wheat, while other farms farther north may grow oats, rye, or barley. There is also a garden with vegetables and fruit for the farmer's own use. Hay of some sort is grown on almost every farm, and we notice that there is a permanent pasture on the rough and swampy parts of the farm which we are visiting. Soy beans are a crop that has been introduced with success on many farms.

We ask why there is so much livestock on a Corn Belt farm. The farmer explains to us that corn is a heavy crop, and it usually pays him better to feed it to stock and then sell the stock than it does to sell the corn outright. Beef cattle are often brought in from the grazing lands of the west to be fattened before they are shipped to the slaughtering houses farther east. Hogs are also fattened on the corn.

The Corn and Winter Wheat Belt · You probably wonder what is meant by "winter wheat." In our Prairie Provinces wheat which is planted in the spring and harvested in the fall is called *spring wheat.* Farther south, where the growing season is longer and the winter cold less severe, wheat can be planted in the fall. The plants spring up with the autumn rains and grow to be several inches high, and then the frost comes and stops their growth; but under the snow the roots live on. In the spring, which is earlier

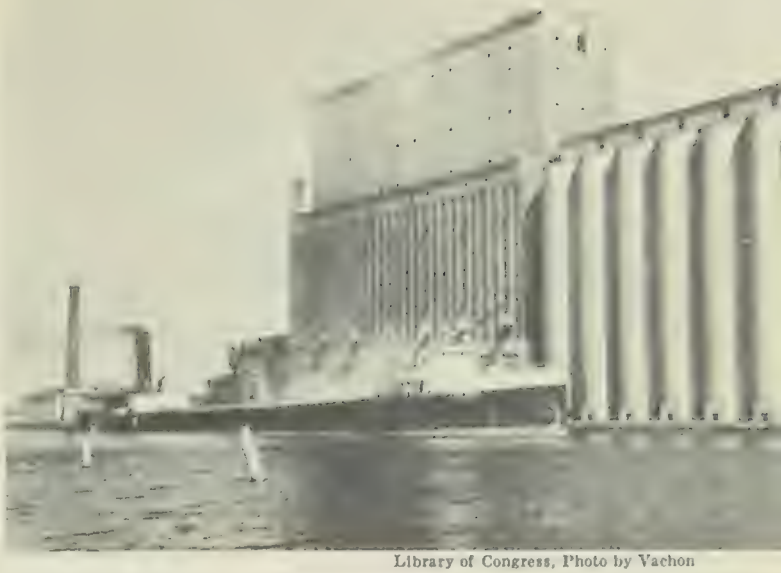
than our spring, the wheat begins to grow as soon as the ground thaws out, and it is ready to be harvested by July.

Trace the Corn and Winter Wheat Belt on your map. In what direction from the Corn Belt does it lie? In this belt both corn and wheat may be grown on the same farm. The corn is used to feed livestock, and the wheat is sold. West of this belt is a district where winter wheat alone is the chief crop.

A decreasing rainfall limits the western edge of the Corn and Winter Wheat Belt. Corn is an important crop in eastern Kansas, but since the rest of the state has too little rain for the best growth of corn, wheat is the principal crop. A few years ago a series of hot summers with little rain brought disaster to the wheat farmers in Kansas and other states of the Great Plains, just as they did to those in Saskatchewan. During those years the light top soil blew away in such quantities that the dry regions of the Great Plains came to be known as the "Dust Bowl." This carrying away of the soil by the wind is called *wind erosion.*

The Spring Wheat Region · Trace the limits of the Spring Wheat Region on the map on page 208. It is really a continuation of our wheat belt, and conditions here differ little from those in our wheat provinces. The most fertile part of the belt lies in the valley of the Red River. Trace this river valley southwards from Winnipeg.

The Hay and Dairying Belt · In the part of the Central States which is north of the Corn Belt the nights are too cool for corn and the rainfall is too great for wheat. The cool, moist climate is excellent for the growth of hay, however, and of such crops as make the best pasturage for cows. Thus this region has become the leading dairying section of the United States. Much of the land is rough, but that does not prevent it from being used for pastures.



Library of Congress, Photo by Vachon

A lake freighter being loaded with grain from the Spring Wheat Region at the port of Duluth.

Some of the milk and cream from the Hay and Dairying Belt is shipped to the cities farther south. The rest is sold to creameries, or butter factories, to cheese factories, and to factories for making condensed and evaporated milk.

A pulpwood region · In a region that was mostly grassy plains you would not expect to find much lumbering being carried on. Find the only two lumbering areas in the Central States—one around the western Great Lakes and the other in the Ozarks. A great deal of lumber was cut from these areas about fifty years ago, and therefore little of the original forest is left. In the Great Lakes lumbering region, however, there are large areas of second-growth trees. These yield so much pulpwood that this region is an important producer of wood pulp and paper.

Mineral resources · Coal and oil are both important in the Central States. Kentucky, Indiana, and Illinois especially have important coal fields. Kansas, Ohio, Indiana, Illinois, and Michigan are large producers of oil. Natural gas is also produced in some of the oil fields. It is easy to see that the Central States have a good supply of fuels for manufacturing and other purposes.

U. S. Bureau of Mines

Loading iron ore with an electric shovel at an "open pit" mine in the Mesabi Range.

The Laurentian Upland section of the state of Minnesota is rich in iron ore. It is one of the most important iron-producing regions in the world. The largest mines are in the Mesabi Range west of Lake Superior. In a visit to one of these mines we see that it is really a deep and very wide hole in the surface of the earth and are told that this is an "open pit" mine. Most of the mines of the Mesabi Range are of this type. The ore lies only fifty feet or so beneath the surface; and after the covering of sand and gravel is removed, it is easy and cheap to mine the ore, which is of a high quality. We watch the great steam shovels scooping the rich ore out of the pit and pouring the ore directly on to freight cars. We are told that in this mine alone there are about seventy miles of railway tracks. The railway carries the ore to the docks at ports on Lake Superior, where it begins its journey to the cities to the east.

In the Keweenaw Peninsula, which juts northwards into Lake Superior, are rich copper mines—the only important ones in the United States east of the Rockies. Another district in the Central States which produces valuable minerals is the Ozark region, where both lead and zinc are mined.

Threshers at a factory in the Central Plains ready to be shipped to distant farm lands.

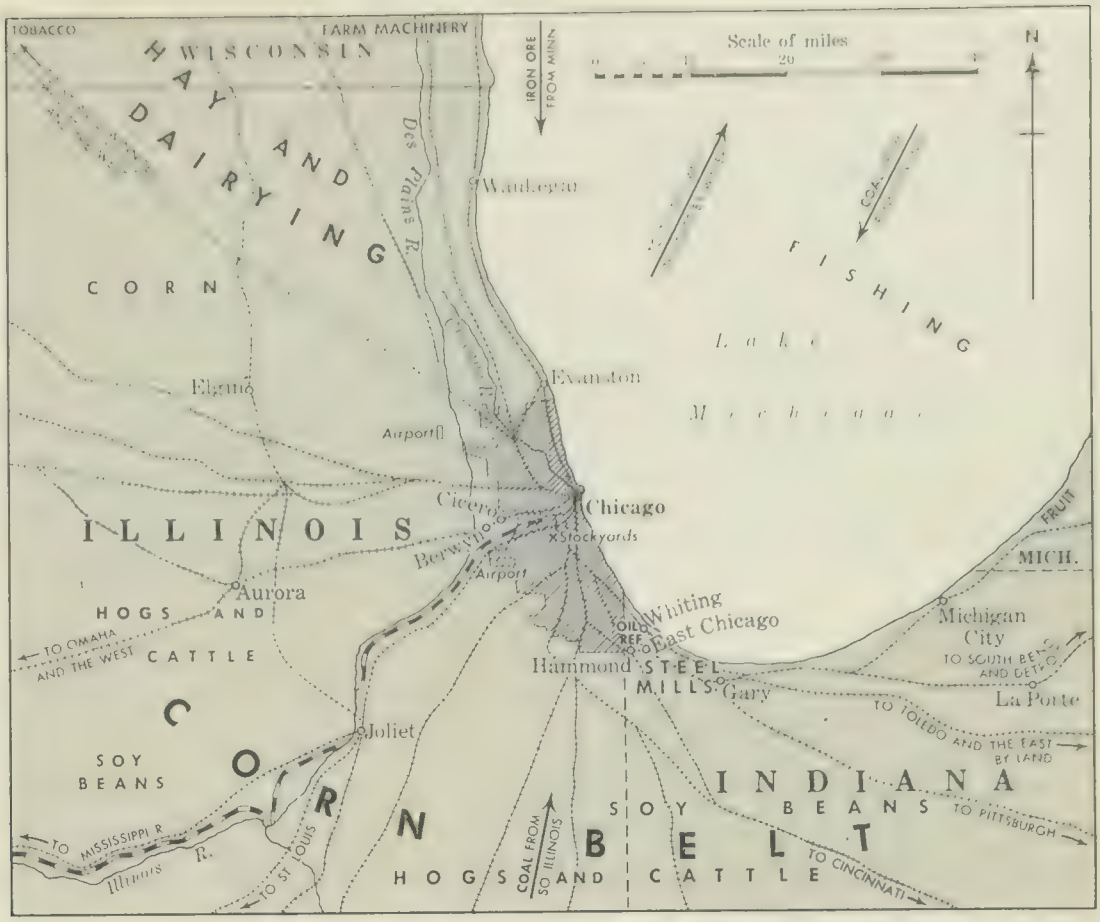
J. I. Case Company

A great industrial region · Because this is a region of plains where farm machinery can be used, one of the important industries in the Central Plains is the manufacture of farm machinery such as ploughs, harrows, mowing machines, trucks, tractors, combines, threshing machines, and many others. The United States manufactures more farm machinery than any other country in the world, and most of it comes from this region.

This agricultural region must have means of bringing its produce to market and of distributing manufactured goods. There must be means of getting about quickly over great distances and of hauling loads both by land and by water. There is a network of roads and railways on this flat, rolling land and a good system of waterways. So we shall not be surprised to find in the Central States plants in which automobiles, boats and marine engines. and railway locomotives and freight cars are being built and repaired.

Great manufacturing centers · Now let us visit some of the large cities of the Central States which are centres of great manufacturing areas.

Chicago. This city is less than one hundred and fifty years old, yet it is the second



A study of this map will help you to understand why Chicago is called the "Great Central Market."

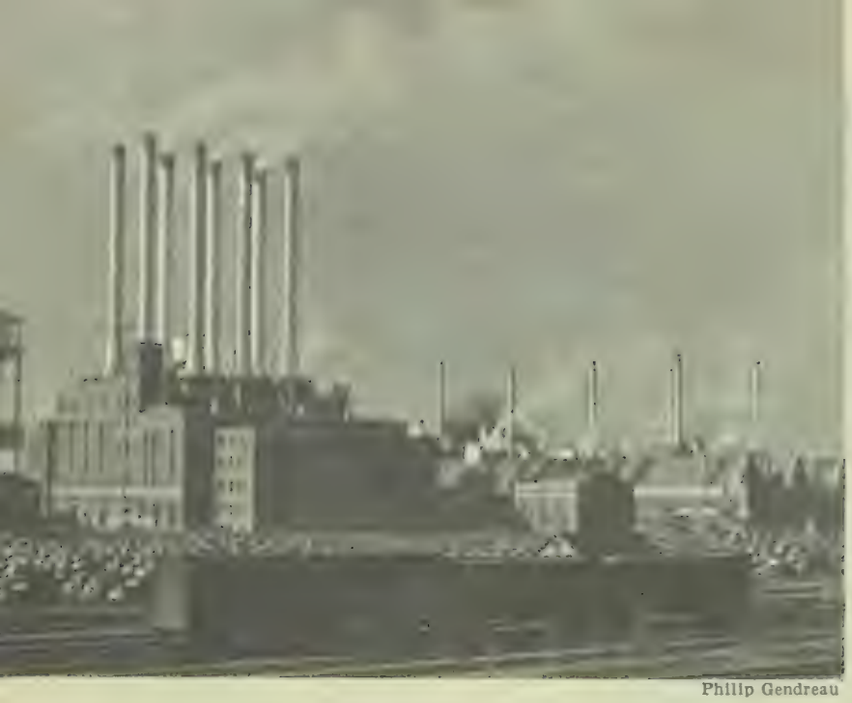
largest city in the United States and one of the large cities of the world. Chicago started as a tiny trading post at the mouth of a little river which empties into the southern end of Lake Michigan. The river mouth gave the best shelter for boats to be found for a long way in either direction, and from there it was only a short distance across country to the headwaters of the Illinois River. When settlers began to come from the east, either by land or by way of the Great Lakes, they used to outfit here before setting out across the plains.

Later, when the railways were built westwards, each new line from the east and the south came into Chicago to connect with the boats which carried passengers and freight on Lake Michigan. Look at the railway map on page 206 and notice how all the lines from eastern United States and Canada must bend southwards around Lake Michigan to reach the northwestern states. Today a barge canal connects the city with the Illinois River so that barges can carry goods right through from the Great Lakes to the Gulf of Mexico.

Chicago is often called the "Great Central Market" because so much of the business of the interior plains is carried on there.

Thousands of manufacturing plants in Chicago turn out so many different products that you would hardly be able to count them all. However, foodstuffs, clothing, and furniture are especially important manufactures because Chicago has so many people and also because it is a great wholesale centre for a large area. Every year thousands upon thousands of well-fattened cattle, hogs, and sheep come to the stockyards in Chicago, and from its packing plants meat is sent all over the United States. Meat packing is Chicago's greatest manufacturing industry, and Chicago is the greatest meat-packing centre in the United States.

DETROIT. Detroit, as you probably know, is famous as an automobile-manufacturing



Philip Gendreau

The large plant of an automobile-manufacturing concern near Detroit.

centre. It is the leader of a group of cities in southeastern Michigan and neighbouring parts of Ohio and Indiana in which more automobiles are built than anywhere else in the world. But automobile factories are simply the best-known of the manufacturing plants, for there are thousands of others which make machines, tools, and other iron and steel products.

Cleveland. The greatest of the coal-and-iron ports of the Great Lakes is Cleveland, in Ohio. A coal-and-iron port is a place where freighters unload iron ore from the Superior region and then take on cargoes of coal for their return trip up the lakes. You can understand why ports where iron and coal meet would have blast furnaces and steel mills. Cleveland is part of the great iron-and-steel district which extends along the lake shore, and it is one of the leading cities of the United States in the manufacture of iron and steel and their products.

St. Louis. Like Chicago, St. Louis is a city which has grown because of the many advantages of its site. It began as a trading post on the first good camping site south of the junction of the Missouri and Mississippi rivers. When steamboat traffic began, it became a river port. Later, when railways were built, the Mississippi was bridged at this point so that traffic from all directions met here. St. Louis is a great manufacturing and distributing centre for flour, meat and meat products, shoes, and many other things.

Milwaukee. The largest city of Wisconsin is Milwaukee, and its location on the shores of Lake Michigan where railways from the north and west meet makes it a gateway through which large quantities of grain and other farm products pass on their way east. It is the leading city of an important manufacturing section in southeastern Wisconsin.

The two Kansas Cities. In the western part of the Corn Belt are two cities of the same name, which are located at the junction of the Kansas River with the Missouri. The

A small part of Cleveland's busy harbour, with some of its ore yards in the foreground.

By Ewing Galloway, N. Y.

The business section of Kansas City, Missouri. Can you think why many railways centre here?

Library of Congress, Photo by Vachon

Part of the grain elevator and flour-milling district of Minneapolis.

larger of the cities is Kansas City, Missouri, and the other is Kansas City, Kansas. The Missouri Kansas City has large butter factories, and the Kansas one has large meat-packing plants. Both cities have flour and grain mills as well as many other manufacturing plants.

MINNEAPOLIS AND ST. PAUL. On the Mississippi River in Minnesota are the "Twin Cities," Minneapolis and St. Paul. Minneapolis is a great flour-milling city, and both it and St. Paul have many other kinds of mills and factories. Together the two cities form an important business, manufacturing, and railway centre.

A MATCHING TEST · Four of the most important cities in the Central States are Chicago, Detroit, Milwaukee, and Cleveland.

1. Which one is an important coal-and-iron port?

2. Which one is the greatest railway centre?

3. Which one is the centre of the automobile industry?

4. Which one leads all other cities in the United States in meat packing?

5. Which one is an important lake port in Wisconsin?

6. Which two are great centres for the manufacture of iron and steel?

QUESTIONS TO ANSWER · **1.** Why can corn be grown so successfully in the Central States?

2. Why is dairying rather than corn-growing the chief type of farming in Minnesota and Wisconsin?

3. Why are the cattle of the Great Plains brought to the Corn Belt for some months before being slaughtered?

4. Why is much agricultural machinery manufactured in the Corn Belt?

5. What is the chief source of power in this region?

6. What mineral is found in the Mesabi Range? in the Keweenaw Peninsula?

7. What two fuels are found in eastern Kansas?

8. What city is located near the junction of the Mississippi and Missouri rivers?

9. Canadian harvesters with their "combines" visit the United States to help with the harvest as far south as Kansas. They return home in time to harvest the crop in Saskatchewan. During what months are they in the United States?

10. Many Americans from the Central States spend their summer vacations in Canada. Suggest the places to which they go and the roads and railways that they use.

James Sawders

Mount Shasta, in the Cascade Range, rises more than two and a half miles above sea level.

Union Pacific Railroad

Barren Death Valley, shut in by mountains, is more than 200 feet below sea level.

THE WESTERN STATES

Find the names of the eleven Western States on your map and write them in your notebook. Which three touch Canada?

You will remember that British Columbia was called "a land of contrasts." The Western States of the United States are a continuation of the mountainous region which extends southwards from Canada. Here, too, are great contrasts.

In the Western States are the highest and lowest lands in the United States. The map on pages 188–189 will show you that much of the land is mountainous. The Rocky Mountains, the Sierra Nevada, and the Cascade Range are the highest lands in the country. The lowest lands are also in these Western States. These lands are Death Valley and the Imperial Valley in California. Both these valleys are 200 feet below the level of the sea. The map on page 187 will show you that the Western States have the largest areas of very rainy lands. The coast lands of northern California, Washington, and Oregon receive from 60 to 100 inches or more of rainfall yearly. In these rainy mountainous lands are the greatest forests of the country. On the map find the areas with less than 10 inches of rain. These dry lands are mostly in the western plateaus. Most parts of the plateaus have too little rain for the growth of trees, and huge areas are so dry that they have only a thin covering of bunch grass.

In the Western States you will find the greatest contrasts in temperature, too. Many of the higher mountains are intensely cold in winter and snow-capped even in summer, while some parts of California and Arizona are warm the year round.

There are also great contrasts in the distribution of population in the West. Some widely scattered places are crowded with people, but there are great stretches of land where there are fewer than two people per square mile. Find these places on the map on page 195. It won't surprise you to learn that these thinly populated lands are in the drier regions of the Western States.

Although the Western States are like western Canada in many ways, and particularly in the variety of their scenery and living conditions, there are important differences. For example, the mountain mass in the United States is much wider than in Canada. Compare the width of the Great Basin with that of the Plateau of British Columbia. Which

is the wider? The mountain wall, and particularly the mountain passes, are higher than those in Canada. This increases the difficulties of road- and railway-building. Also less moisture crosses the mountain wall. The region is nearer the equator and therefore is hotter than western Canada. This greater heat increases the rate of evaporation. For all these reasons, desert conditions are much more serious and widespread in the Western States of the United States than they are in western Canada.

The settlement of the West · A search for furs brought the first settlers to the western lands of the United States, but it was the discovery of gold, in 1849, that really opened up the far west there, as it did in British Columbia and the Yukon. Many of the gold hunters had little luck and gave up. Some went home, but some stayed on in California and began farming and ranching. People soon began coming from other parts of the country when they heard of the rich lands and the favourable climate.

A ranching region · Look at the map on page 186. What four of the Western States have a share in the Great Plains? The driest parts of the Great Plains are the parts that extend into the Western States. Where the scant rainfall makes farming impossible, there is usually pasturage for livestock. Before the white man came, these lands were pastures for great herds of buffaloes; but today cattle and horses are raised on the best pastures, and sheep and goats graze where only scrub or coarse, tufted grass will grow. Because the pasturage is poor, a rancher needs a very large piece of land if he is to make a profit. This is the land of the cow-boy, the bronco, the rodeo, and the dude ranch.

Blizzards are common in the winter in the northern part of the Great Plains, and so when cold weather comes the cattle must be gathered in from the scattered pastures for

Library of Congress, Photo by Arthur Rothstun

Newly-sheared sheep on the way to their summer pastures high up in the mountains.

protection from the snow and wind. They are then fed *forage crops*, such as alfalfa and Kafir corn, which can be grown in regions of little rainfall. Farther south, the cattle remain out all winter. Even so, they are sometimes given extra feedings if the grass in the pastures dries up or is cropped too closely. In the autumn the cow-boys round up the herds, "cut out" those animals which are to be sold, and start them on their journey eastwards to be fattened in the Corn Belt.

The sheep, particularly in the north, are kept in unfenced pastures. Each flock is divided into bands of several hundred animals. Each band is watched over by a shepherd and his dog. As soon as the sun begins to grow hot in June, the sheep are sheared. Men who are trained for this work go about from ranch to ranch. They use electric clippers for shearing, and they work so quickly that almost before a sheep knows what is happening, it is on its feet again feeling much more comfortable.

By the time the shearing of the sheep is over, the grass on the winter pasture is becoming shrivelled in the hot sun. Then the sheep start out on the journey to the summer

U. S. Department of the Interior

Hoover Dam. The water held back by this dam forms an artificial lake 115 miles long.

pastures high up on the mountains. They move slowly, feeding as they go. First they find coarse grass and scrub, then rocks and small bushes, and finally scattered trees. Beyond these, they come into a forest; but still higher up are the grassy pastures where they will spend the summer. Most of these upland pastures belong to the United States Government, and the rancher pays a small sum for each animal he sends to feed on the nation's grass. As soon as snow begins to fall on the high peaks, the shepherds gather their bands together and start once more for the lowland pastures where they will spend the winter.

A market garden scene in the Central Valley. The truck is being loaded with lettuce.

Library of Congress, Photo by Russell Lee

Farming in the West · Much of the farming in the Western States is carried on by means of irrigation. Look again at the rainfall map, and you will see that the driest lands in the United States are in the West. You will also see that large areas of the rainiest lands in the country are in this region.

FERTILE VALLEYS AND IRRIGATION DAMS. Look at the map on page 188 and find the Rio Grande and the Colorado, Pecos, and Gila rivers in the southwest. The water of these rivers is used for irrigation, which makes possible in these dry regions such "garden spots" as the Imperial Valley and the Salt River Valley.

The United States Government has built many great dams across the rivers in the Southwestern States, with canals for distributing their water. The dams are built upstream to hold back part of the water of the river. From the reservoir where the surplus water is stored, it is let out as it is needed to irrigate the farm lands.

Hoover Dam, on the Colorado River, is the greatest dam of this part of the country. It brings many benefits to the surrounding land, for it lessens the danger of floods along the lower part of the river, it provides a more dependable supply of water for the lands irrigated from the river, and it provides electricity for power.

THE CENTRAL VALLEY OF CALIFORNIA. Here, in the valleys of the Sacramento and San Joaquin rivers, is the largest of the fertile valleys of the arid southwest. It is known as the Central Valley of California. Streams rush down into it from the Sierras, bringing with them pebbles, sand, and soil. Where a river enters the valley, its load is laid down in a sloping fan-shaped plain known as an *alluvial fan*. There is a succession of these alluvial

fans along the Central Valley. They make irrigation fairly simple, as the water can be controlled at the top of the fan and turned in any direction as needed.

The irrigated lands are planted with orchards of fruit trees, and there are groves of orange trees among the foothills. The climate makes the valley well suited to fruit-growing. Because of the long growing season, there is little danger from frost in spring and autumn. Fruit becomes especially firm and juicy and has a delicious flavour as a result of the dry air and abundant sunshine. With irrigation the trees receive the right amount of water as they need it. Much fruit is sold fresh, and much more is preserved in one way or another. Large quantities of prunes, peaches, and apricots are dried in the hot summer sunshine, as are also many of the kinds of grapes that make raisins.

There are market gardens near all the large cities in Central California. A large part of their products are sold in the markets there and in other parts of the country, or are sent to near-by canneries. Large quantities of winter vegetables are sent eastwards in refrigerator cars.

THE WILLAMETTE VALLEY AND THE PUGET SOUND LOWLAND. In the Northwestern States the climate is similar to that of British Columbia's coast. Here there is no need for irrigation, as the rainfall is abundant and the climate is pleasantly cool. This is another great fruit region, but, as you would expect, the fruit is not the same as is produced farther south. This is the great berry country: strawberries, raspberries, and loganberries all thrive here. Cherries, plums, and apples are also grown in abundance. Much mixed farming and stock raising are carried on, and poultry raising is common. Because of the mild climate, the grass here makes excellent pasturage and hay grows well, and so dairying is very important.

Caterpillar Tractor Company

Cherry harvest on a farm in the fruit region of the Northwestern States.

THE COLUMBIA BASIN. Farther east, on the rolling land of the Columbia Basin, great crops of wheat and barley are produced. The Grand Coulee Dam on the Columbia River provides water for irrigation in the drier parts of the interior of the basin and supplies enormous reserves of water power as well.

THE GREAT BASIN. Find the Great Basin on the map on page 186. Do you remember why this area is so dry? Since it is surrounded on all sides by a wall of high mountains, the

Grand Coulee Dam. Notice the two large power houses which supply electric light and power.

U. S. Bureau of Reclamation

Library of Congress, Photo by Russell Lee

Lumbermen felling a tree with a hand saw in an Oregon forest.

streams that flow down from the mountains cannot make their way to the sea. Instead, as they flow out on to the level ground at the foot of the mountains, each stream deposits its load of rock and soil in the form of an alluvial fan. The water then wanders out across the plain, where it sooner or later disappears either by evaporation or by soaking into the ground. Streams with enough water for irrigation are hard to find, and crops can be grown here only by means of irrigation.

The only densely populated area in the Great Basin is in the vicinity of Great Salt Lake. This area has been changed by irrigation from a barren strip of desert into an oasis which produces fine crops. Mixed farming is the rule, and the principal money crops are sugar beets, wheat, vegetables, and fruits.

Workers slicing salmon in a cannery near the mouth of the Columbia River.

Library of Congress, Photo by Russell Lee

Forests and lumbering · Knowing conditions in British Columbia, you would expect to find great forests on the mountain slopes of the Northwestern States also. In fact, these states have the most important stands of timber in the United States.

Where there are forests so near to settled districts, there is bound to be lumbering. The methods of lumbering and the uses of the lumber are much the same as those in British Columbia. On the map on pages 188–189 notice how Puget Sound stretches its long fingers inland. The Columbia River is also navigable as far as Portland. This means that the lumber can easily be brought to tidewater, and along these arms of the sea are many sawmills and woodworking plants.

In addition to the tall, straight Douglas firs and other softwoods of Washington and Oregon, there are the giant sequoias which are found in certain places on the slopes of the Sierra Nevada in California. Some of the sequoias are over 250 feet high, or almost as high as the Sun Life Building in Montreal, and are several thousand years old. To make sure that these trees are preserved for future generations, the Government has set aside the sequoia forests as a national park.

Fisheries · Salmon fishing is important along the coast and rivers of Washington just as it is along the coast of British Columbia. The Northwest leads all other sections of the United States in fishing because of the huge number of salmon caught there. Salmon canneries are common along Puget Sound as they are along the rivers of British Columbia.

Mineral resources · We have already learned that gold was the lure that brought settlers to California in 1849. The Sacramento Val-

By Ewing Galloway, N. Y.

At the left is part of the hill in Butte where huge quantities of copper are mined.

ley was the scene of a famous gold rush. Panning for gold was first tried, but later on, placer mining and dredging were carried on. (If you have forgotten what these terms mean, look them up in the index and then turn to the pages mentioned.)

The Rocky Mountain region is a real treasure house of metal ores, the chief of which are copper, lead, zinc, silver, and gold. Butte, Montana, is an important mining town with a great hill of ore in its centre. Another great mining district is the Coeur d'Alene district in northern Idaho. It is one of the most important centres in the United States for the production of silver, lead, and zinc.

California is outranked only by Texas as an oil-producing state. Think how important a resource this is. The manufacturing plants of California, most of the railways of the state, and many of the ships from its ports depend upon fuel oil for steam power.

Manufacturing · Because the western part of the United States has not been settled so long as the eastern part, manufacturing there is still in what might be called its early stages. The raw products used are chiefly those which are available. Near the important mines are smelters and refineries. In the lumbering districts are sawmills, shingle mills, and woodworking plants. Near the fruit and truck farms are canning factories and jam factories. The fisheries along the coast require canneries. In centres from which stock is shipped are slaughtering houses and meat-packing plants. In the north are flour mills which use the wheat from Oregon and Washington, and in the dairying sections of the north and California are creameries and cheese factories. During

A forest of derricks in a California oil field. Of what place in Canada do they remind you?

Gabriel Moulin

Fairchild Aerial Surveys, Inc.

The Grand Canyon of the Colorado River is 250 miles long, and part of it is over a mile deep.

the Second World War the great western seaports became centres for shipbuilding and aeroplane manufacturing.

The lowland region of the Northwest is well suited to manufacturing because of the abundance of power that is available. Hydro-electric power is provided by rivers which are well fed by heavy rains and melting snow from the bordering mountains, and coal for steam power is mined east of Puget Sound. This section is also fortunate in being able to obtain raw materials easily by boat or train from near and far. With oil in the south and water power in the north added to the shipping opportunities afforded by the good harbours, the West promises to have great development in manufacturing in the future.

An air view of Los Angeles and part of its harbour. The city itself is in the background.

© Spence Air Photos

The West as a tourist and resort paradise · California offers many attractions to tourists, especially to those who dislike a cold climate. Added to its warm winters and almost rainless summers, are the beauty and variety of its scenery.

But California is not the only tourist attraction which the West has to offer. The United States Government has set aside great areas of land as national parks in the West, all of which are worth visiting. Some of the best known are Yellowstone National Park, with its remarkable geysers and hot springs, and Yosemite, Glacier, Mount Rainier, and Grand Canyon national parks. In all these parks the natural beauties of each area and its wild life are preserved.

Many tourists come each year to see the beauty of the Rocky Mountains with their snowy peaks, forested slopes, and clear, sparkling streams.

Denver · Find Denver, in Colorado, on the maps on pages 188–189 and 206. The railways which centre there make it a gateway to the mountains. When gold was discovered in Colorado, Denver became an important little business centre for gold miners. Its growth into a large city began in 1870 when two railways reached it. Today its location and its railways make it the most important business centre for the Great Plains to the east and the mountains to the west.

Los Angeles · With its palm trees and gay flowers and warm, sunny climate, Los Angeles is a beautiful city. It has grown very rapidly since 1900, and is now the largest city of the Western States.

Originally a Spanish village, Los Angeles later became the centre of a fruit-raising district where oranges, grapefruit, lemons, and walnuts thrive under irrigation in the bright

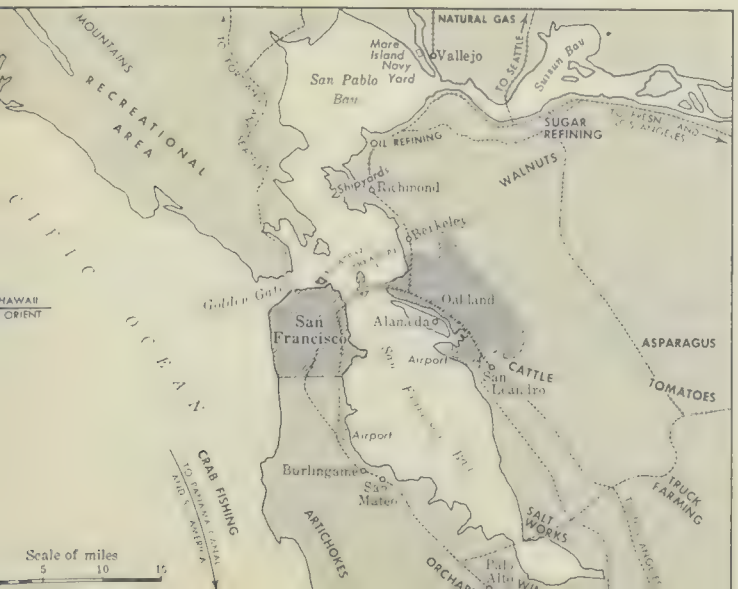
sunshine. But Los Angeles was not on the seacoast, and it lacked coal and other power for manufacturing. Then oil was discovered in southern California, and there was a rapid increase in mills and factories as soon as this cheap fuel became available for manufacturing power. In recent years a power line has been built to bring hydro-electricity to the city all the way from Hoover Dam. Today the Los Angeles lowland is one of the great industrial areas of the United States.

Los Angeles became a seaport when its people bought a strip of land connecting the city with San Pedro on the coast. They deepened the harbour, built a long breakwater and many piers, and created a modern port.

Two other attractions added to the swift growth of Los Angeles. It was about the year 1900 that people in other parts of the United States began to find out about the pleasant climate of southern California and to come to Los Angeles to enjoy its year-round warmth. Later the motion-picture industry began in Hollywood, which is a part of Los Angeles. The industry grew very rapidly, and it has played a big part in increasing the population of Los Angeles and its neighbourhood.

San Francisco · San Francisco is built on a deep arm of the sea and has a large, safe harbour. Although the city is only about 400 miles from Los Angeles, it has a very different climate. Winds which blow towards the land over a cold current outside the Golden Gate (the entrance from the Pacific to San Francisco Bay) keep the temperature low in summer and bring in heavy fogs from the sea morning and evening. During summer days a stiff sea breeze blows through the Golden Gate. One always needs a coat after dark, for the evenings are chilly. This makes San Francisco a summer resort to which the people of the hot, interior valley are attracted. Although the summers are cool, the winters are not cold and frosts are few.

The district around San Francisco Bay. Why is this a densely populated area?



© Spence Air Photos

Downtown San Francisco. In the background is the Golden Gate. Find it on the map on this page.

Like Los Angeles, San Francisco lacks coal and its electric power has to be brought long distances. Most of the city's industries are a response to the needs of the people who are far from the manufacturing east. The manufacture of clothing, food products, and electrical apparatus, printing and book-binding, oil refining, shipbuilding, and the manufac-

ture of aeroplanes are among the most important industries.

All around San Francisco Bay are small cities that have grown up at the outlet of the Central Valley and at the western terminus of railway lines. Steamship lines from San Francisco lead out across the Pacific to the Hawaiian Islands, Asia, and Australia, as well as to Alaska and the Panama Canal. The city is also an important airway centre for Clipper planes to Hawaii and to Asia.

Seattle · Seattle is in the northwest part of the state of Washington. It has a fine harbour on Puget Sound, and an inner harbour which was made possible by building a canal to Lake Washington behind the city. Here railway lines from the east exchange goods with ocean steamers. Passenger ships travel between Seattle and Vancouver and Victoria in British Columbia, and many motorists go from this northwest region to Canada for vacations. For its living Seattle depends on salmon and fruit canneries, flour mills, woodworking plants, machine shops, shipbuilding yards, and aeroplane plants.

THINGS TO DO · **1.** State as many reasons as you can why fewer people live in the Western States than in the eastern part of the United States. Re-read the chapter and study your maps to help you to find reasons.

2. Compare the following cities:

a. Los Angeles and Boston.
b. San Francisco and New York.
c. Seattle and New Orleans.

Discuss with your classmates the various headings you should use in making the comparisons.

3. Draw a large map of California and on it show the following:

The Sierra Nevada	San Francisco
The Coast Ranges	Mount Whitney
The Sacramento River	Death Valley
The San Joaquin River	Yosemite National Park
The Golden Gate	The Central Valley

By using colours and a key, show where each of the following is produced:

Raisins	Citrus fruits	Oil
Prunes	Apples	Lumber
	Winter vegetables	

4. Divide the class into groups and let each choose a national park in the West. Try to obtain tourist pamphlets describing these parks. Let each group find out the attractions that its chosen park has to offer, and describe these to the rest of the class.

Part of Seattle's water front on Puget Sound.

Photograph by Bradford Washburn

Back from the coast of southern Alaska rise snow-covered peaks down which glaciers move slowly.

A TERRITORY OF THE UNITED STATES

Alaska was the first possession to be taken over by the United States. It was bought in 1867 from the Russians. At the time, the price paid for it was thought to be extravagant, but the country has paid for itself many times over.

Compare the position of Alaska with that of the Yukon. You will see that much of it lies in the same latitude. However, because it has a long sea coast, this part of Alaska has a milder climate than is found in the Yukon. For some time after they had bought Alaska, the Americans did not realize that any part of the country had so pleasant a climate; they thought of it as a land of ice and snow.

Alaska's resources · The Klondike gold rush that opened up the Yukon brought hundreds of miners into Alaska. The river gravels of the Yukon Plateau region and the beach sands near the city of Nome are rich sources of gold. Gold is one of Alaska's valuable exports. It is bought by the United States Government. The value of the copper produced is even greater than that of the gold, and coal has been discovered.

Like British Columbia, Alaska has an important salmon-fishing industry, with canneries along the southern coast. Supply ships come from Seattle and carry back the tinned fish. Halibut and mackerel are also caught.

Off the Pribilof Islands in the Bering Sea are the famous seal-fishing grounds. Every summer thousands of seals come from the Pacific Ocean to these small islands. Here the baby seals are born, and until they are old enough to swim away to the ocean, the seals all remain with them on the islands. At one time so many seals were killed for their beautiful fur that it looked as though the herds would die out. Now Government boats patrol the island waters to see that only a certain number of the animals are killed each year.

Another valuable resource of Alaska is its

Photo from Three Lions

An Alaskan farmer and his family harvesting the potato crop from their garden.

beautiful scenery, which brings many tourists to the territory every summer. The highest peaks in the whole western mountain mass are Mount McKinley in Alaska and Mount Logan across the border in Canada. There are many volcanoes in Alaska, some of them active, and near one of these volcanoes is "The Valley of Ten Thousand Smokes," where steam breaks through the ground in many little jets. Among the mountains and in several places along the coast are glaciers —some of the largest in the world. The long hours of sunshine delight summer tourists, who find it amusing to play tennis at ten o'clock at night—without electric lights!

A catch of Alaska salmon has just been loaded into the boat which will take it to a cannery.

Jan Walsh from Black Star

THE THREE REGIONS OF ALASKA

The Southern Coastal Region · This includes the part bordering British Columbia and the southern coast of Alaska proper, about as far west as Kodiak Island. The coast has deep fiords and high forested slopes. Off the coast is a warm current which keeps the winters mild and the summers pleasant. The winds blowing over this warm current bring much rain to the mountainous coast. This rain, as you know, is the reason for the splendid forests. Lumbering and the making of pulp and paper are industries that may be expected to develop more and more as the population increases.

Inland are several sheltered and fertile valleys. The best-known is probably the Matanuska Valley, settled chiefly by farmers from the North Central states of the United States. Here farming is successfully carried on, and crops of vegetables such as cabbage, peas, lettuce, and turnips, fruit such as strawberries, grains such as wheat, oats, rye, and barley, and hay for the dairy cows are raised. Although the summer is short, everything grows rapidly during the long days.

The Central Region · This includes the valley of the Yukon and the high inland plateau. It is a region of extremes, with bitterly cold winters and short, hot summers. Few trees grow here except in sheltered hollows or along the rivers, but there is thick grass. Reindeer herds were brought into Alaska from Siberia by the United States Government some years ago, and have multiplied rapidly. They supply not only food for the Eskimos but skins for clothing material.

Courtesy of Canadian National Railways

Juneau, the largest town in Alaska, is hemmed in between the mountains and the sea. Its water front is a busy place, with fishing boats and other ships coming and going.

The Northern Tundra · Few white people live here, but Eskimos make a living from the reindeer, or by fishing and hunting the caribou and other wild animals. Near Point Barrow, in the far northern part of Alaska, many oil wells have been drilled. The Seward Peninsula, which borders Bering Strait, is only thirty-six miles from Siberia in Asia.

ALASKA'S FUTURE

Although few people now live in Alaska, its natural resources may attract a larger population in days to come. But the country needs more roads and railways before it can be properly opened up. However, because of its network of airways, Alaska may never need a network of railways.

In 1942 the United States Government built the motor road known as the Alaska Highway. This road runs north from Dawson Creek, in British Columbia, through Yukon into the southeast part of the main peninsula of Alaska. The Canadian section has been turned over to the Canadian Government. Some day this highway may become a popular tourist route to Alaska. See the picture on page 164.

Juneau, the capital, and Skagway and Fairbanks are the chief towns of Alaska.

THINGS TO DO · **1.** Try to find out something about the Alaskan Eskimos. They differ in various respects from the Canadian Eskimos.

2. Find what information you can about the seal herds of the Pribilof Islands.

3. List all the ways in which Alaska has been of value to the United States.

4. Make an album of pictures of Alaska. Write a short description of what you find attractive about each.

5. Bering Sea is named after an explorer of the eighteenth century. Find out from an encyclopedia or other reference book about the journeys that he made in an attempt to learn whether Asia and America were joined. Draw a map showing the route of his travels, and mark on it Bering Island, where he died.

Film List

For Ginn and Company's Taylor, Seiveright, and Lloyd: *Canada and Her Neighbours.*

To obtain the films mentioned in this list, teachers should apply to the Audio-Visual Aids Branch of their provincial Department of Education, or to the National Film Society, 172 Wellington Street, Ottawa,

II · By the Atlantic Ocean

Maritime Provinces (Erpi. 1943. B. and W. 10 mins.). Offers a brief overview of the region, and animated scenes of settlement from 1710 to the present day. The chief occupations are treated. Trade routes indicate the extensive exchange of goods between this region and other parts of Canada and other countries.

Coal for Canada (N.F.B.* 1943. B. and W. 9 mins.). Animated graphs illustrate the formation of coal and the sinking of mine shafts. The camera shows the working of an undersea mine at Sydney, N.S., and the transport of coal to industrial centres.

Grand Manan (N.F.B. 1943. Colour. 10 mins.). Fishing for herring and sardines in the Bay of Fundy; canning and smoking the catch; description of the island of Grand Manan and the life of the fisherfolk.

Land from the Sea (N.S. Dept. of Industry & Publicity. 1946. Colour. 11 mins.). Dikes in the Minas Basin region—their history, importance, and construction. The building of several dikes under the present land reclamation plans is shown, and the working of sluices is made clear.

Lumbering in Eastern Canada (N.F.B. 1926. Silent. B. and W. 10 mins.). An old, but useful, film on small-scale lumbering operations as carried on in New Brunswick, Quebec, and Ontario. Shows the life and work of the shantymen in the forest during the winter.

Prince Edward Island (N.F.B. 1943. Colour. 10 mins.). Mixed farming on the Island (field crops, fruit, livestock); fur farming; fishing; summer holiday resorts; with a rapid survey of the history of the Island, a view of Anne's Green Gables, and a glance at the travelling library system.

Salt from the Earth (N.F.B. 1944. B. and W. 9 mins.). A visit to the huge salt mine at Malagash, N.S., showing how salt is mined and suggesting its many uses in industry.

Toilers of the Grand Banks (N.F.B. 1940. Silent. B. and W. 14 mins.). Another old, but particularly valuable, film. Maps show the location of the banks, and charts explain how sunlight penetrating the shallow water allows the growth of plants and thus provides food for fish. The camera also shows the building of a schooner and the use of trawls and dories.

Harvesting the Deep (C.G. Silent. B. and W. 10 mins.). The deep-sea fisheries of the Maritime Provinces are among the most prolific in the world. This film depicts how Nova Scotia fishermen gather their harvest of cod, haddock, flounders, and other fish off the Cape Sable Banks.

Trappers of the Sea (N.F.B. 1945. Colour. 12 mins.). The lobster-fishing industry in the Maritimes. Filmed at Larry's River, N.S., this picture shows fishing operations, canning, and co-operative marketing.

III · Canada's Largest Province

An Autumn Trip Around the Island of Orleans (Quebec Travel Bureau. 1944. Colour. 16 mins.). A pictorial tour of this historic, beautiful, and interesting island.

Byways of New France (Quebec Travel Bureau. 1941. B. and W. 10 mins.). A camera tour through the Province, beginning at the city of Quebec and continuing through Gaspesia and other outlying districts. Stress is laid on the life and occupations of the inhabitants.

The Lure of Quebec (Quebec Government. Colour. Silent. 23 mins.). Many views in and around the city of Quebec.

Wonderland of Gaspé (Quebec Government. B. and W. Sound. 10 mins.). Scenes in Montreal, Trois Rivières, and Quebec where the highway to the Gaspé begins. Various industries are depicted: farming, tanning of hides, Indians making baskets, spinning of wool, wood carving, and cod-fishing. The complete tour of Gaspesia is then made, including Bonaventure Island bird sanctuary.

Fur Country (N.F.B. 1942. Colour. 23 mins.). An Indian trapper visits his trapline in the James Bay region. Winter travel by dog-sled and snowshoe, camping in the snow, various ways of setting traps, and the best way to dry pelts are all shown.

The Fur Trade (N.F.B. 1946. B. and W. 11 mins.). An outline of the historical importance of the fur trade; modern methods of trapping, trading, and preparing pelts; scientific fur farming; and conservation measures for restocking depleted areas with fur-bearing animals.

Gaspé Cod Fishermen (N.F.B. 1944. B. and W. 11 mins.). Fishing has been the staple industry of Gaspé for centuries. Today modern methods of packing, the manufacture of by-products, and co-operative organization have given the trade a new lease on life.

Maple Sugar Time (N.F.B. 1941. Colour. 11 mins.). Maple-sugaring on a French-Canadian farm. The farmer taps his trees, collects the sap, and boils it down by old-time methods to form maple syrup or blocks of maple sugar. The film ends with a "sugaring-off party."

Montreal Tercentenary (N.F.B. 1944. Colour. 20 mins.). A visit to the largest and one of the most historic Canadian cities. We see its tercentennial celebrations, some of its old streets and buildings, and its intellectual, commercial, and industrial life of today.

Power from Shipshaw (N.F.B. 1946. B. and W. 9 mins.). The huge new power development at Shipshaw, P.Q., has provided energy for one of the largest aluminum plants in the world. Scientists are discovering fresh peacetime uses for this light, strong, pliable metal.

Power Valley (N.F.B. 1946. B. and W. 17 mins.). The hydro-electric development of the St. Maurice River valley and the growth, within the last fifty years, of textile, pulp and paper, and other industries. Animated maps are used to show the placing of the dams.

River of Canada (N.F.B. 1944. Colour. 22 mins.). A voyage down the St. Lawrence from the Great Lakes to the sea, showing the scenery, towns, and industrial life along its banks.

River of Paper (Leon Shelly. 1945. Colour. 20 mins.). Made for the Powell River Co. in B.C., this film is an account of the making of paper, from logs to finished rolls of newsprint.

School for Canadians (N.F.B. 1945. B. and W. 10 mins.). At the summer school at Trois Pistoles, on the lower St. Lawrence, French-speaking and English-speaking students meet and mingle to study each other's language and learn to understand one another.

Spring on a Quebec Farm, Summer on a Quebec Farm, Winter on a Quebec Farm (N.F.B. 1947. Colour. 10 mins. each). Specially prepared for school use, this series shows the life and work of a Quebec habitant family at the village of Les Eboulements on the lower St. Lawrence.

Tomorrow's Timber (N.F.B. 1944. Colour. 18 mins.). Timber is one of our most valuable natural resources, yielding a living to thousands of people in various ways, and vitally affecting agriculture and hydro-electric developments. Forest fires mean staggering losses, and no effort must be spared to prevent them.

The Industrial Provinces (Erpi. 1943. B. and W. 10 mins.). Presents the region as "The Heart of the Dominion." Traces early settlement and emphasizes concentration of people about the Great Lakes. The main industries and scenic attractions are dealt with. Final sequences summarize import and export routes, and business centres of the region.

IV · North of the Great Lakes

Furnaces of Industry (British Min. of Information. 1945. B. and W. 12 mins.). The entire process of making steel, and its importance in war and peace.

Great Lakes (N.F.B. 1942. Colour. 20 mins.). The main stream of shipping down the Great Lakes, and an outline of the industries along the shores. The shipping theme links together short sequences on steel making, pulp and paper, shipbuilding, grain storage, and the workings of canals and locks. (Filmstrip and wallsheet also available.)

Great Lakes Shipping—filmstrip (N.F.B. 1945. B. and W. 50 frames). The story of some of the vessels that ply the lakes, and the different kinds of cargo that they carry. The N.F.B. has also issued a wall-sheet on this subject with 6 photographs of shipping and industry.

Niagara Frontier (N.F.B. 1943. Colour—11 mins.; or B. and W.—15 mins.). A region of first-rate orchard lands and rich fishing grounds, with a spectacular source of hydro-electric power, Niagara is also a thriving centre of industry, an important Great Lakes shipping port, and a rail centre.

*N.F.B. stands for National Film Board.

A Modern Eden (N.F.B. Sound. B. and W. 10 mins.). Portrays blossom time and harvest time in the great fruit belt of the Niagara Peninsula of Ontario. Illustrates the picking, sorting, and shipping of cherries, peaches, pears, and apples which grow in this fertile region.

Ottawa on the River (N.F.B. 1942. Colour. 18 mins.). Summer, autumn, and winter in the capital of Canada: monuments, buildings, and parks; the lumbering industry; the daily life of the people.

Steel (British Council. 1946. Colour. 35 mins.). The British steel industry: blast furnaces, forges, rolling mills, machine shops, and skilled craftsmen. There is a sequence on hand-forging fine steel in small crucibles.

The Story of Steel (Knowledge Builders. 1939. B. and W. 10 mins.). Iron is traced from the mine through the refining processes and into use in such varied ways as in watch springs, a skyscraper, and a battleship.

Unlocking Canada's Treasure Trove (N.F.B. 1938. B. and W. 30 mins.). This film takes its audience down into one of Canada's large gold mines and shows in detail the work of the miners. Diagrams are used to illustrate technical points.

V · From the Great Lakes to the Rocky Mountains

Prairie Provinces (Erpi. 1943. B. and W. 10 mins.). Shows the great contrasts existing in this region. The major sequence traces the steps in grain-growing from planting to milling and distribution. Other sequences dealing with mining, transportation, and commerce stress the potential resources.

The Canadian People—filmstrip (N.F.B. 1943. Silent. B. and W. 60 frames). An analysis of the Canadian population in terms of their national origins, environment, and occupations. The chief stages in population growth from 1871 to 1941 are shown, and reasons are suggested for each increase.

Canadian Wheat Story (N.F.B. 1944. B. and W. 6 mins.). The story of wheat from the prairie fields to the bakeries: harvesting, shipping, storage, and baking. One of the Canadian Work and Wealth series, this is a film specially made for school use.

Farmers of the Prairies (N.F.B. 1940. Silent. B. and W. 16 mins.). A useful film showing the formation of the plains and the black prairie soil; the growing of spring wheat; the use of various types of farm machinery; storage elevators and the shipment of wheat by rail and water. Drought, dust storms, and measures to control them are also illustrated. Animated charts and maps are freely used.

From the Ground Up—filmstrip (N.F.B. B. and W. 56 frames). The formation of coal and the processes of coal mining explained to children as their train passes through the mining district of Alberta.

Golden Fleece (Australian Govt. 1941. B. and W. 10 mins.). An outstanding film depicting sheep-raising (in Australia): washing, shearing, and branding the sheep; grading and packing the wool.

Heritage (N.F.B. 1939. B. and W. 17 mins.). The restoration of hope to the farmers of the drought-stricken west through the efforts of the Prairie Farm Rehabilitation Administration: conservation of moisture, development of new methods of farming, and conversion of marginal lands to uses other than grain-growing.

Meat for America (Armour Co. 1941. B. and W. 20 mins.). A tour of a modern meat-packing plant, where ham, bacon, and fancy sausages are made, and lamb and beef are inspected and prepared for shipment in refrigerator cars. Though commercially sponsored, this film contains a minimum of advertising, and is so clear and complete that it will be very useful in schools.

New Home in the West (N.F.B. 1943. B. and W. 16 mins.). An account of the first half-century of Ukrainian settlements on the prairies, illustrating the great development of western agriculture.

Peoples of Canada (N.F.B. 1941. B. and W. 21 mins.). The earliest French settlers; the different nationalities who settled the Maritimes; the various racial groups who came to the industrial regions of Ontario or took up land on the wide prairies; and the others who made new homes on the Pacific Coast.

Peace River (N.F.B. 1941. Colour. 20 mins.). An outline of the settlement of the Peace River block by homesteaders and of activity there today; modern methods of farming (grain and livestock), fishing, fur ranching; the railway and plane service; and the development of timber and oil resources.

The Story of Oil (N.F.B. 1946. B. and W. 20 mins.). A film of the Canadian Work and Wealth series, showing how oil is obtained from the wells of the Turner Valley in Alberta.

The Story of Wheat (Knowledge Builders. 1941. B. and W. 10 mins.). The history, growth, harvesting, and preparation of wheat for its most important use as bread.

VI · A Province of Contrasts

Pacific Canada (Erpi. 1943. B. and W. 10 mins.). Location, geography, and early settlement of the region are briefly surveyed. The major industries are portrayed, and future development is indicated. Activities in leading seaports and cities show interdependence with other parts of Canada and the world.

West Coast Mountains (N.F.B. Silent. B. and W. 10 mins.). This great natural barrier is a prolific source of minerals; the valleys between the ranges provide fertile soil for farmers; while vast forests clothe the mountain sides. The importance of the lumbering industry of British Columbia is shown.

After Fifty Years (N.F.B. 1937. B. and W. 9 mins.). Highlights of the busy city and seaport of Vancouver.

Apple Valley (B. C. Travel Bureau. 1941. Colour. 10 mins.). Apple-growing and harvesting in the Okanagan Valley.

Banff-Jasper Highway (N.F.B. 1939. B. and W. 11 mins.). A film showing the beautiful highway which links our two largest national parks.

Jasper (N.F.B. 1946. Colour. 10 mins.). A picture of the famous national park, with its majestic scenery, varied sports, and alpine flora and fauna.

Lumbering in British Columbia (N.F.B. Silent. 1926. B. and W. 13 mins.). An old, but useful, silent film showing lumbering operations in the B. C. forests.

People of the Potlatch (N.F.B. 1944. Colour. 19 mins.). A somewhat romanticized account of the lives and occupations of the B. C. Indians.

River of Paper—See the film list given for Quebec.

Salmon Run (N.F.B. 1945. Colour. 21 mins.). The Fraser River salmon run; the life cycle of the sockeye; the work of the International Fisheries Commission to restore the annual run to its former colossal value.

Trees That Reach the Sky (N.F.B. 1945. B. and W. 8 mins.). The story of the Sitka spruce that became a plane.

Victoria, City of Sunshine (N.F.B. 1937. B. and W. 10 mins.). A visit to the capital of B. C.

VII · Canada's Northland

Eskimo Summer (N.F.B. 1946. Colour. 20 mins.). Newly revised for classroom use, this film shows the busy summer life of the Eskimos of the eastern Arctic as they prepare food and clothing supplies against the winter. The annual visit of the "Nascopie" is included.

Land for Pioneers (N.F.B. 1944. B. and W. 14 mins.). The Alaska Highway has opened up the rich Northwest to development by modern pioneers: minerals, fisheries, forests, and farm lands. An introductory preface describing the geography and importance of the Northwest Territories, and a discussion trailer in the form of a quiz (both by Dr. Charles Camsell) are available with this film.

The New North (N.F.B. 1946. B. and W. 10 mins.). A somewhat shorter account of the territory opened up by the Alaska Highway, introducing the theme of the development of the tourist trade.

Northwest by Air (N.F.B. 1944. B. and W. 15 mins.). Airways have overcome the ancient natural barriers of river, mountain, and forest to make the wild Northwest accessible.

Northwest Frontier (N.F.B. 1942. B. and W. 25 mins.). A survey of important elements in the life of the Northwest Territories: the Mackenzie River, the fur trade, mining developments, church missions, and modern air transport.

The Romance of Radium (M.G.M. Schools production. 10 mins.). The story of the discovery of radium.

VIII · Another British Dominion

Atlantic Crossroads (N.F.B. 1945. B. and W. 10 mins.). Against a war background, this film surveys the nature of Newfoundland and its inhabitants, and emphasizes the importance of the island and Labrador as key points on the global air routes.

Laying the Atlantic Cable (Knowledge Builders. 1944. B. and W. 11 mins.). Scenes aboard a cable ship laying the Newfoundland-Azores cable. Depth sounding is explained, and the method of making and laying a telegraphic cable.

Newfoundland, Sentinel of the Atlantic (N.F.B. 1945. Colour. 18 mins.). A picture of the daily life of the Newfoundlanders.

Viking (Newfoundland Labrador Film Co. 4 or 6 reels). A dramatic story of the sealing fleet off the coast of Labrador. In a spoken prologue, Sir Wilfred Grenfell vouches for the authenticity of the film. (Likely to be too long for ordinary classroom use.)

AREA AND POPULATION OF THE PROVINCES OF CANADA

	Area in Square Miles	Population		Area in Square Miles	Population
Alberta	255,285	800,000	Ontario	412,582	4,107,000
British Columbia	366,255	1,003,000	Prince Edward Island	2,184	94,000
Manitoba	246,512	727,000	Quebec	594,860	3,630,000
New Brunswick	27,985	480,000	Saskatchewan	251,700	830,000
Northwest Territories	1,304,903	16,000	Yukon	207,076	8,000
Nova Scotia	21,068	612,000	*Total*	3,694,863	12,307,000

AREA AND POPULATION OF NEWFOUNDLAND AND LABRADOR

Newfoundland	42,734	300,000	Labrador	110,000	5,000

PLACES IN CANADA HAVING 5000 OR MORE PEOPLE

	Population		Population		Population
Amherst, N.S.	8,620	Leaside, Ont.	6,183	St. Jérôme, Que.	11,329
Asbestos, Que.	5,711	Lethbridge, Alta.	14,612	St. John, N.B.	51,741
Barrie, Ont.	9,725	Levis, Que.	11,991	St. Joseph d'Alma, Que.	6,449
Belleville, Ont.	15,710	Lindsay, Ont.	8,403	St. Joseph de Grantham, Que.	5,556
Brampton, Ont.	6,020	London, Ont.	78,264	St. Lambert, Que.	6,417
Brandon, Man.	17,383	Long Branch, Ont.	5,172	St. Laurent, Que.	6,242
Brantford, Ont.	31,948	Longueuil, Que.	7,087	St. Thomas, Ont.	17,132
Brockville, Ont.	11,342	Magog, Que.	9,034	Sarnia, Ont.	18,734
Calgary, Alta.	88,904	Medicine Hat, Alta.	10,571	Saskatoon, Sask.	43,027
Campbellton, N.B.	6,748	Midland, Ont.	6,800	Sault Ste. Marie, Ont.	25,794
Cap-de-la-Madeleine, Que.	11,961	Mimico, Ont.	8,070	Shawinigan Falls, Que.	20,325
Charlottetown, P.E.I.	14,821	Moncton, N.B.	22,763	Sherbrooke, Que.	35,965
Chatham, Ont.	17,369	Montmorency, Que.	5,393	Simcoe, Ont.	6,037
Chicoutimi, Que.	16,040	Montreal, Que.	903,007	Smith Falls, Ont.	7,159
Cobourg, Ont.	5,973	Montreal North, Que.	6,152	Sorel, Que.	12,251
Collingwood, Ont.	6,270	Moose Jaw, Sask.	20,753	Springhill, N.S.	7,170
Cornwall, Ont.	14,117	Nanaimo, B.C.	6,635	Stellarton, N.S.	5,351
Dartmouth, N.S.	10,847	Nelson, B.C.	5,912	Stratford, Ont.	17,038
Drummondville, Que.	10,555	New Glasgow, N.S.	9,210	Sudbury, Ont.	32,203
Dundas, Ont.	5,276	New Toronto, Ont.	9,504	Summerside, P.E.I.	5,034
Eastview, Ont.	7,966	New Waterford, N.S.	9,302	Swansea, Ont.	6,988
Edmonton, Alta.	93,817	New Westminster, B.C.	21,967	Swift Current, Sask.	5,594
Edmundston, N.B.	7,096	Niagara Falls, Ont.	20,589	Sydney, N.S.	28,305
Forest Hill, Ont.	11,757	North Bay, Ont.	15,599	Sydney Mines, N.S.	8,198
Fort Erie, Ont.	6,595	North Sydney, N.S.	6,836	Thetford Mines, Que.	12,716
Fort Frances, Ont.	5,897	North Vancouver, B.C.	8,914	Thorold, Ont.	5,305
Fort William, Ont.	30,585	Orillia, Ont.	9,798	Timmins, Ont.	28,790
Fredericton, N.B.	10,062	Oshawa, Ont.	26,813	Toronto, Ont.	667,457
Galt, Ont.	15,346	Ottawa, Ont.	154,951	Trail, B.C.	9,392
Glace Bay, N.S.	25,147	Outremont, Que.	30,751	Transcona, Man.	5,495
Granby, Que.	14,197	Owen Sound, Ont.	14,002	Trenton, Ont.	8,323
Grand' Mère, Que.	8,608	Parry Sound, Ont.	5,765	Trois Rivières	42,007
Guelph, Ont.	23,273	Pembroke, Ont.	11,159	Truro, N.S.	10,272
Halifax, N.S.	70,488	Peterborough, Ont.	25,350	Valleyfield, Que.	17,052
Hamilton, Ont.	166,337	Portage la Prairie, Man.	7,187	Vancouver, B.C.	275,353
Hawkesbury, Ont.	6,263	Port Arthur, Ont.	24,426	Verdun, Que.	67,349
Hull, Que.	32,947	Port Colborne, Ont.	6,993	Vernon, B.C.	5,209
Ingersoll, Ont.	5,782	Port Hope, Ont.	5,055	Victoria, B.C.	44,068
Joliette, Que.	12,749	Preston, Ont.	6,704	Victoriaville, Que.	8,516
Jonquière, Que.	13,769	Prince Albert, Sask.	12,508	Waterloo, Ont.	9,025
Kamloops, B.C.	5,959	Prince Rupert, B.C.	6,714	Welland, Ont.	12,500
Kelowna, B.C.	5,118	Quebec, Que.	150,757	Westmount, Que.	26,047
Kenogami, Que.	6,579	Regina, Sask.	58,245	Weston, Ont.	5,740
Kenora, Ont.	7,745	Renfrew, Ont.	5,511	Weyburn, Sask.	6,179
Kingston, Ont.	30,126	Rimouski, Que.	7,009	Whitby, Ont.	5,904
Kitchener, Ont.	35,657	Rivière-du-Loup, Que.	8,713	Windsor, Ont.	105,311
Lachine, Que.	20,051	Rouyn, Que.	8,808	Winnipeg, Man.	221,960
Lachute, Que.	5,310	St. Boniface, Man.	18,157	Woodstock, Ont.	12,461
La Tuque, Que.	7,919	St. Catharines, Ont.	30,275	Yarmouth, N.S.	7,790
Lauzon, Que.	7,877	St. Hyacinthe, Que.	17,798	Yorkton, Sask.	5,577
Leamington, Ont.	5,858	St. Jean, Que.	13,646		

AREA AND POPULATION OF STATES AND POSSESSIONS OF THE UNITED STATES

CENSUS OF 1940

	Sq. Miles	Population
Alabama	51,609	2,832,961
Arizona	113,909	499,261
Arkansas	53,102	1,949,387
California	158,693	6,907,387
Colorado	104,247	1,123,296
Connecticut	5,009	1,709,242
Delaware	2,057	266,505
District of Columbia	69	663,091
Florida	58,560	1,897,414
Georgia	[illegible]	[illegible]
Idaho	83,557	524,873
Illinois	56,400	7,897,241
Indiana	36,291	3,427,796
Iowa	56,280	2,538,268
Kansas	82,276	1,801,028
Kentucky	40,395	2,845,627
Louisiana	48,523	2,363,880
Maine	33,215	847,226
Maryland	10,577	1,821,244
Massachusetts	8,257	4,316,721
Michigan	58,216	5,256,106
Minnesota	84,068	2,792,300
Mississippi	47,716	2,183,796
Missouri	69,674	3,784,664
Montana	147,138	559,456
Nebraska	77,237	1,315,834
Nevada	110,540	110,247
New Hampshire	9,304	491,524
New Jersey	7,836	4,160,165
New Mexico	121,666	531,818
New York	49,576	13,479,142
North Carolina	52,712	3,571,623
North Dakota	70,665	641,935
Ohio	41,222	6,907,612
Oklahoma	69,919	2,336,434
Oregon	96,981	1,089,684
Pennsylvania	45,333	9,900,180
Rhode Island	1,214	713,346
South Carolina	31,055	1,899,804
South Dakota	77,047	642,961
Tennessee	42,246	2,915,841
Texas	267,339	[illegible]
Utah	84,916	550,310
Vermont	9,609	359,231
Virginia	40,815	2,677,773
Washington	68,192	1,736,191
West Virginia	24,181	1,901,974
Wisconsin	56,154	3,137,587
Wyoming	97,914	250,742
POSSESSIONS		
Alaska	586,400	[illegible]24
Guam	206	[illegible]90
Hawaii	6,407	423,330
Panama Canal Zone	549	51,827
Puerto Rico	3,435	1,869,255
American Samoa	76	12,908
Virgin Islands	133	24,889

CITIES IN THE UNITED STATES HAVING 100,000 OR MORE PEOPLE

CENSUS OF 1940

Akron, Ohio	244,791
Albany, N.Y.	130,577
Atlanta, Ga.	302,288
Baltimore, Md.	859,100
Birmingham, Ala.	267,583
Boston, Mass.	770,816
Bridgeport, Conn.	147,121
Buffalo, N.Y.	575,901
Cambridge, Mass.	110,879
Camden, N.J.	117,536
Canton, Ohio	108,401
Charlotte, N.C.	100,899
Chattanooga, Tenn.	128,163
Chicago, Ill.	3,396,808
Cincinnati, Ohio	455,610
Cleveland, Ohio	878,336
Columbus, Ohio	306,087
Dallas, Tex.	294,734
Dayton, Ohio	210,718
Denver, Colo.	322,412
Des Moines, Ia.	159,819
Detroit, Mich.	1,623,452
Duluth, Minn.	101,065
Elizabeth, N.J.	109,912
Erie, Pa.	116,955
Fall River, Mass.	115,428
Flint, Mich.	151,543
Fort Wayne, Ind.	118,410
Fort Worth, Tex.	177,662
Gary, Ind.	111,719
Grand Rapids, Mich.	164,292
Hartford, Conn.	166,267
Houston, Tex.	384,514
Indianapolis, Ind.	386,972
Jacksonville, Fla.	173,065
Jersey City, N.J.	301,173
Kansas City, Kans.	121,458
Kansas City, Mo.	399,178
Knoxville, Tenn.	111,580
Long Beach, Calif.	164,271
Los Angeles, Calif.	1,504,277
Louisville, Ky.	319,077
Lowell, Mass.	101,389
Memphis, Tenn.	292,942
Miami, Fla.	172,172
Milwaukee, Wis.	587,472
Minneapolis, Minn.	492,370
Nashville, Tenn.	167,402
Newark, N.J.	429,760
New Bedford, Mass.	110,341
New Haven, Conn.	160,605
New Orleans, La.	494,537
New York, N.Y.	7,454,995
Norfolk, Va.	144,332
Oakland, Calif.	302,163
Oklahoma City, Okla.	204,424
Omaha, Nebr.	223,844
Paterson, N.J.	139,656
Peoria, Ill.	105,087
Philadelphia, Pa.	1,931,334
Pittsburgh, Pa.	671,659
Portland, Oreg.	305,394
Providence, R.I.	253,504
Reading, Pa.	110,568
Richmond, Va.	193,042
Rochester, N.Y.	324,975
Sacramento, Calif.	105,958
St. Louis, Mo.	816,048
St. Paul, Minn.	287,736
Salt Lake City, Utah	149,934
San Antonio, Tex.	253,854
San Diego, Calif.	203,341
San Francisco, Calif.	634,536
Scranton, Pa.	140,404
Seattle, Wash.	368,302
Somerville, Mass.	102,177
South Bend, Ind.	101,268
Spokane, Wash.	122,001
Springfield, Mass.	149,554
Syracuse, N.Y.	205,967
Tacoma, Wash.	109,408
Tampa, Fla.	108,391
Toledo, Ohio	282,349
Trenton, N.J.	124,697
Tulsa, Okla.	142,157
Utica, N.Y.	100,518
Washington, D.C.	663,091
Wichita, Kans.	114,966
Wilmington, Del.	112,504
Worcester, Mass.	193,694
Yonkers, N.Y.	142,598
Youngstown, Ohio	167,720

Index and Pronouncing Word List

KEY. ā as in āle; ă as in ăm; â as in senâte; â as in câre; à as in àsk; ä as in ärm; *ă* as in *ă*ccount; *à* as in sof*à*; ē as in ēve; ę as in hęre; ĕ as in ĕnd; ê as in êvent; ē as in makēr; *ĕ* as in recĕnt; ī as in ice; ĭ as in ill; *ĭ* as in contĭnents; ō as in ōld; ŏ as in ŏdd; ô as in ôbey; ô as in ôrb; ô as in sôft; *ŏ* as in cŏnnect; ū as in ūse; ŭ as in ŭp; û as in ûnite; û as in ûrn; *ŭ* as in circ*ŭ*s; ü as in menü; o͞o as in fo͞od; o͝o as in fo͝ot; oi as in oil; ou as in out; N as in boN; th as in then; ' as in (ē'v'l)

NOTE. Map references are given thus: *95*, F3. The number in italic type, *95*, = the map page; F3 = the letter and number on the margins of the map. The F refers to the area between two meridians of longitude, and the 3 refers to the area between two parallels of latitude. The letter and the figure are to be used as guides in locating the place

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